Fiction and Video Games: Towards a Ludonarrative Model

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Glossary

AAA

Video games from major publishers that are usually characterised by big development and marketing budgets.

AI

Short for artificial Intelligence. An attempt at programming a computer to mimic patterns of human thinking like problem solving.

HUD

Short for heads-up-display. Refers to the overlay that communicates a variety of information to the player extra-diegetically.

Indie

Short for independent video game, indies have small budgets and small teams and are often characterised by innovation and digital distribution.

NPC

A non-playable character. NPC's are often differentiated from enemy characters, and imply at least some level of interactability.

Fail-state

The undesirable result of player being unable to achieve a goal. Usually involves having to replay parts or even the entirety of the game.

1. Video Games as an Art Form

The goal of this thesis is to establish a theoretical framework for examining, analysing and critiquing narrative and dramatic content in video games. To accomplish this goal, the role of narrative in video game experiences will first be examined through the lens of how they differ from the narratives found in other media, such as literature and film. I will then take a look at what types of approaches there have been so far to understand video games, and whether these attempts sufficiently address the diversity of the medium and its capabilities, as well as the implications this has for the future of the study of interactive media, before attempting to create a framework that addresses the possible shortcomings of those that have paved the way for my endeavours.

First, it is beneficial to understand the cultural context in which video games are situated presently through some history: In the 1980s, as Nintendo was trying to expand from their native Japan to the United States, they were faced with a market that had recently experienced a flood of low-quality software resulting in consumer distrust in the video games industry as a whole. As a result, they tried, and succeeded, in rebranding video games as toys. When the Nintendo Entertainment System launched in the United States, it was packaged with a toy robot and sold, along with its software library, in the toy sections of retail outlets instead of the software section of computer stores. Nintendo's success in the United States therefore resulted in not only establishing Nintendo as a staple of the industry, but also in reinforcing the notion of video games as an adolescent form of entertainment (DeWinter, 2015, pp. 1-56).

In public consciousness, video games remained a form of children's entertainment at least until 1994, which saw the creation of ESRB, a parental guidance and rating system for video games that acknowledged the fact that not all games are even suitable for children. However, the creation of ESRB was only a minor part of acknowledging the entire spectrum of the expressive capabilities of video games, as it was primarily concerned with informing about violent or sexual content. The shift from marketing video games as children's toys to approaching the status of similar cultural significance as older media can be seen in games that are incredibly complex mechanically, such as *Defense of the Ancients* (2003) and *Starcraft* (1998), but also in mature and complex themes and

complex story structures that challenge the notion of video games being simple entertainment. We now have genres of video games like *serious game* and *art game* that suggest video games are used as a medium for exploring more complex and serious topics. These works attempt to be meaningful interactive experiences first, and games second, and, in my opinion, demonstrate that video games are also capable of evoking a wide range of complex emotional responses in the gaming audiences and offer new perspectives on themes that are difficult to produce within the confines of traditional, non-interactive, linear media.

Despite this, numerous scholars in academic game studies have voiced the opinion that video games should be looked at as mechanical systems rather than as a narrative medium. Other disciplines have even been accused of "colonising" the research of video games and claiming it as their own (Aarseth, 2001). The idea behind the revolt against viewing video games as narratives was that video games cannot and should not be reduced to the narrative; that they deserve a discipline of their own, ludology, capable of understanding what makes video games unique. This is of course true, since games are obviously something more than stories and considering them exclusively as stories would be to ignore one of their most important functions. Yet I believe dismissing the narrative potential of the medium can result in a tremendous disservice to game studies – not considering the narrative is also reductivist, limiting the perception of what a game is to something far less complex than they so obviously are. Games need to be examined from the narrative point of view simply because they are used to convey stories that the audience finds meaningful.

Thus, part of the goal of this thesis is to challenge both the notion that video games continue the tradition of narratives, as well as the notion that video games continue the tradition of games and play. The premise of the present thesis is that they, in their current form, share features of both but should be considered a new medium inherently separate from those that have come before. If ludology is a field dedicated to studying games and play, it can never offer a sufficient set of tools to understand the cultural phenomenon known as video games beyond simple game-like video games such as *Tetris* (1984) and limited aspects of more complex games. Rather, efforts need to be made to understand the specific medium and its artistic possibilities.

2. Video Games and Narrativity

The discussion of narratology versus ludology (Frasca, 2003) is over in video game research. No-one is willing to bring up narratives in video game research anymore because of this almost traumatic memory of a near-meaningless debate that took place almost 20 years ago now. Yet, as games are becoming more and more narrative-focused, the field of video game research is in desperate need of tools for the analysis and understanding of narrative structures in video games.

The term 'video games' in and of itself is a somewhat loaded one, since it does not refer to works of art that are film, nor ones that are necessarily even games. Interestingly, the term video games seems to be older than the misguided notion of video games as some sort of an interactive extension to cinema – a notion that has no doubt led to the current *status quo* of emulating cinematic expression instead of further exploration of the innate qualities of interactivity. I am tempted to use phrases like “the medium we have chosen to call video games” to avoid this connotation, but for the sake of both brevity and clarity I shall abide by the common terminology, rather than use a term like “interactive audiovisual experiences” (Arsenault & Perron, 2015) that would perhaps more accurately describe the art form.

Before talking about narratives in video games, it is first beneficial to understand what video games are considered to be. As a part of the entertainment industry, video games are often seen as an unproductive way to pass time, and as a relatively young form of entertainment, perhaps a more adolescent one than literature and film. Early on, video games were made for children, as Bing Gordon, a founding member and long-time CCO of Electronic Arts reminisces:

> [w]hen EA started, the idea was to make games for 28-year-olds when everybody else was making games for 13-year-olds. We were talking about software that was worthy of the minds that used it. (Campbell, 2017, cha 5, para 7)

According to a study of U.S. gamers conducted by the *ESA Entertainment Software Association*, the average age of gamers is now 35 years, with women comprising 41% of people playing video games

(2017). Analogously, the medium is often spoken of as being a maturing one that is only now beginning to find its own voice (c.f. Mulkerin, 2016).

Video games are engaging, captivating, immersive and fun, but what exactly are they? They have a participatory aspect to them, at least. Sometimes they are competitive or offer a challenge for the user and sometimes they can be more accurately described as platforms for player expression. Experiencing a video game usually involves a screen and an activity known as play. To define *play*, we can turn to Katie Salen and Eric Zimmerman, who define it as "the free space of movement within a more rigid structure", (2003) and Bogost (2008) uses the term "possibility space" to describe the concept concisely as it relates to video games. This captures the essence of player interaction with the medium well: the "rigid structure" describes the game design that the player can then navigate and learn what actions result in desirable outcomes. The balance in a given design can of course lean more to either the structural or free space side, but it is not unreasonable to argue that a rigid structure exists in every game design in some shape. Playing a video game, then, is the act of navigating the possibility space that is formed by the structures of a game design. Immediately, the question arises if stories are compatible with this concept of possibility spaces. In video game design, story may or may not be part of the navigable structures, i.e., it is separable from the notion of 'play' and exists as a complementary construct to it. This is despite the fact that notable researchers often situate video games perhaps too strictly within the context of play and non-digital games (Mäyrä, 2008).

In a classic study from the field of psychology by Fritz Heider and Marianne Simmel (1944), it was discovered that people associate emotions and motivations to even the simplest of shapes, such as animated triangles and circles. In the early days of electronic games, technology of the time would not allow for a level of detail far beyond the simple shapes of the Heider/Simmel experiment. For example, in *Space Invaders* (1978), the player controls a vaguely tank-shaped object that shoots alien-shaped objects descending from the top of the screen. The game does not have a plot, but some attributes of stories are present, namely characters, conflict and resolution. The space theme was perhaps chosen for marketing reasons – *Star Wars* had been released the previous year in the United States and was released the same month *Space Invaders* arrived at the arcades in Japan. However, the game's graphics serve another important purpose as well: they convey visually the

rules of the game and contextualise the action. *Space Invaders* is not a game that is trying to tell a story, but in a way similar to the Heider/Simmel experiment, the game contains enough elements for someone to fill in one: Earth is under attack and the player's mission is to impede the alien invasion for as long as possible. As this rudimentary example shows, it is difficult to keep the notion of story out from the discussion about video games – games do not really have any other option besides telling stories.

How is story defined in the context of video games, then? The second edition of *Webster's Unabridged Dictionary* contains this definition of story for general purposes:

> **Sto•ry**[1] [...] 4. the plot or succession of incidents of a novel, poem, drama etc. (Flexner, 2001)

Using this definition of story for video games works well, since it encompasses all events whether they are facilitated by the game or the player, although it needs to be noted that this does not necessarily reflect the player experience, as it is possible that some players feel their actions are not part of a 'canonical' story. However, when it comes to the closely related term 'narrative', the definitions become somewhat more complex. *The Oxford Dictionary of English* defines 'narrative' as a “spoken or written account of connected events” (Oxford Dictionaries, 2018). Video games are obviously neither spoken nor written accounts, though they can contain such elements, relayed to the player via dialogue or cutscenes as *embedded* elements. It also implies that it is by someone else and that the end-user is a recipient, i.e., there is a *narrator* and a *narratee*. Video games challenge this paradigm by making the player an integral part of the story, and empowering him/her to essentially create their own narratives (to a highly varying degree) within the game world, obscuring the distinction between narrator and narratee.

Merriam-Webster's online dictionary merriam-webster.com offers a more inclusive definition for the needs of this study: “the representation in art of an event or story.” (Merriam-Webster, Inc., 2018) Representation is a convenient word, since it does not dictate the medium like Oxford’s definition does, while alluding to the fact that story is the material that can be told in different ways, i.e. narrated in different ways.

In Bordwell & Thompson, narration is defined using the terms *plot* and *story* (2013). Plot to them is the artistic choice of arranging the events of the chronological story. Narration, then, is defined as the process that guides us in building the story out of the plot. It is worth emphasising how broad this definition is. In the context of film, narration includes, according to Bordwell & Thompson, everything from voiceover commentary and music to camera tricks like double exposure or depth of field, i.e., everything that can be interpreted to have a semiotic function (pp. 74-106).

Adapting this framework to the context of video games needs to take into account the fact that video games are a fundamentally different medium from film or any other medium. Similar to how the use of the camera is understood to be part of the narration in film, video game theory needs to embrace the entirety of the medium to fully understand narration in this context. For video games, this includes a variety of elements in addition to the visual and audial possibilities, like the gameplay mechanics, the different systems that the player can manipulate, controls and so on. It is therefore important to distinguish *narrative design* from *content writing.* Narrative design is an all-encompassing process that encompasses, in addition to writing, everything from character and environment design to textures and sound effects. The goal of narrative design is to ensure that the end product is a cohesive whole – to create a narrative comprising the gameplay, mechanics etc., not simply connect gameplay segments through cutscenes. Creating a cohesive narrative does not, however, equate to creating a story-focused experience: on the contrary, decidedly gameplay-focused games like *DOOM* (2016) are often quite cohesive experiences, mostly due to the virtue of simplicity.

While cohesion is rarely talked about yet crucial to the medium, interactive storytelling is the opposite: it fascinates academia almost endlessly, but is surprisingly rarely seen to any real extent in video games. Quite often developers are content with pursuing an *illusion* of narrative agency; important-feeling decisions the player makes can be acknowledged with as little as a single line of dialogue. From a design perspective, choice is *restrictive*. While these games may occasionally succeed in making the player feel like their decisions matter, the next step for storytelling envisioned by Murray (1997), the possibility to exert one's own influence over the story's trajectory in a non-scripted manner, is yet to be realised.

The participatory nature of video games means that they do not fit within the traditional narrative modalities, yet we tend to think of stories told by video games as narratives. This is due to the parallel structures games share with narratives, like characters, events and settings. Eskelinen (2001) sees thinking about games in such a way as naïve – the lack of a narrative situation is to him definite proof that video games are not narratives. He prefers to use the term *simulation* to more accurately describe the gaming situation.

Ryan, (2001) however, argues that this is not enough of a reason to throw away everything we have so far learned about storytelling:

> The inability of literary narratology to account for the experience of games does not mean that we should throw away the concept of narrative in ludology; it rather means that we need to expand the catalog of narrative modalities beyond the diegetic and the dramatic by adding a phenomenological category tailor-made for games. (Ryan, 2001)

In a similar way as the old adage "show, don't tell" instructs for a more direct representation of concepts, it could be seen that for video games, there is a third option besides showing or telling: doing. This might be a preferable alternative to those less direct approaches for a medium that is all about being able to interact with virtual environments. For someone wanting to tell a specific story, this presents and additional issue to the interpretation of the work: what if the player does something unexpected or unwanted?

For example, the story of a game might imply a sense of urgency, yet the player is aware that they can "suspend" the story to, for example, search for hidden collectibles, if no timer is present on the screen. This is part of a phenomenon known as subversive play, and is something a lot of developers feel the need to design around, that is, to restrict the player's options. Tanenbaum (2013) argues that players are capable of cycling between different modes of play without letting the others suffer, i.e., looking for treasure while not feeling like the narrative urgency is contradicted by their actions.

Taking the opposite stance to Eskelinen, notable academics such as Murray use the term narrative to describe the *gaming situation* in a more general sense. To Murray, even games like *Tetris* have a

narrative aspect to it, despite it being the prototypical abstract game without characters, events or any sense of plot. Murray considers *Tetris* to be an allegorical enactment of the busy lives of Americans in the 1990s – a stance which has largely been considered unsubstantiated, not least because the game was developed in the Soviet Russia in 1984 (Murray, 1997, p. 143-144). Murray's interpretation has little supporting evidence in the work. Although Tetris could certainly be used as a metaphor for a hectic lifestyle, it does not equal that any more than any given sunset equals death. And even supposing it did, the leap from deeming a mere metaphor story is quite a considerable one. The narrativity of Tetris arises entirely from interaction, similar to how a game of football can be narratively engaging, but is typically not considered a story per se.

The very idea of *narrative*s evokes the concept implied by *Oxford*'s definition of the word: that it is *by* someone else and that the end-user is a recipient, that there is a *narrator* and a *narratee*. Video games change this paradigm by making the player an integral part of the story, and empowering him/her to essentially create their own narratives (to a highly varying degree) within the game world.

All things considered, the fact remains that games do not usually fit within the traditional spectrum of definitions for 'narrative' in literary criticism or film research. This brings up the question of whether the literary definition of narrative should be expanded to include video games as Ryan suggests or the concept of narrativity in video games abandoned entirely like Eskelinen proposes. The third alternative would of course be to create a *ludonarrative* theory specifically for the field of ludology.

This is what Aarseth, (2012) perhaps in hopes to solve a dispute over terminology, argues, when he proposes the term *ludonarrative* to describe the common constitutive elements between video games and stories. This is a proposition I am inclined to mostly agree with. Ludonarrative is a good term to start with, as the term does not leave room for a debate: the prefix *ludo*- asserts that the discussion concerns the narrative content in a game context, as opposed to a presumably fixed narrative of television and literature. The implications of Aarseth's *Narrative Theory of Games* will be discussed in more detail later in this thesis.

3. Theoretical framework

This section will lay the foundations for a framework that allows for the examination of narratives in the context of video games. To accomplish this, a look at a wide variety of video games is needed to achieve a general picture of the different methods of storytelling video game developers are using. Additionally, the most influential pieces of research are considered and discussed to form what I hope to be a mediating voice in the sea of contradictory opinions about video games and narrativity. This is done to ground my ludonarrative model in earlier discussion, although I will be presenting some of my own ideas as well.

3.1. Which narrative?

In his Master's thesis, Weise (2004) examines the factors that make video games important socially, culturally and personally, focusing on *story* and *emotion* as the primary mediators of meaning. His paper brings forth a major issue within the academia at the time: there was little agreement when it came to video games – whether that be the question of if video games are art or not, stories or not, or what kind of terminology is appropriate to use. Weise was able to identify some underlying rhetorics that unify significant parts of the seemingly divided community using conflicting terminology to describe the same ideas:

> It seems that what Crawford and Spector call storytelling Zimmerman calls narrative; but what Zimmerman calls story Eskelinen calls narrative. Shifting of terminology can be confusing, but it also makes clear just how similar the underlying ideas about narrative can be: underneath everyone is repeating the same rhetorics (Weise, 2004, p. 35).

The two rhetorics that are referred to here are those of *simulation* and *narration*. The first one proposes the view that video games are not stories, but rather act as a platform to experience. The second one argues that video games are authorial narratives in similar fashion to literary and film narratives. As Weise also shows, there are academics (cf. Herz, Poole, Salen & Zimmerman) who see

these two types of experiences coexisting – a sentiment that reflects the way I would articulate the practice. Thus, I see video games as having the capability to have two kinds of experiences that can be referred to with the term 'narrative', both of which can be equally meaningful to the player, but are likely to engage different emotions and feelings. In the next two sections, I will attempt to gather the ideas behind these two rhetorics under terms that can be used to describe different aspects of the gaming situation, as opposed to arguing that games are or should be considered either or.

3.1. Authored narrative

I use the term authored narrative to refer to the story written by the developers, which can be either synchronic (takes place during gameplay) or diachronic (takes place before, after or between gameplay segments). The authored narrative is what is most commonly considered to be the "story" of a game, perhaps because it resembles the narratives of linear media that we are already familiar with. Authored narrative is similar to what Salen & Zimmerman call *embedded narrative* (2003), but using terminology that does not reinforce the detrimental idea of narrative being a separate entity from the game – something to be *embedded* in it. This term is best reserved for the practice of using pieces of other media in video games, as I will do later in this paper.

Although similar to narratives in film and literature, authored narratives in video games are afforded new dimensions by the interactive medium. Namely, allowing for a choice of different *kernels* and (more commonly) *satellites* can give the narrative a sense of interactivity. The authored narrative can be interactive by allowing for a choice between different kernels and satellites, but it is not truly malleable by the user in the sense that they could experience a story of their own fabrication. Here, a parallel can perhaps be drawn to oral storytelling traditions, where a story can differ quite significantly between retellings.

3.2. Emergent narrative

Although I describe the narrative based on the idea of the narration rhetoric *authored*, this does not mean that emergent narratives lack an authorial intent altogether. Additionally, the term narrative can be argued to be less descriptive than simulation (cf. Frasca, 2003) the reason I choose to talk of emergent narratives is the fact that I wish to emphasise the narrative meaningfulness of player interaction. Alternative term to emergence used in game development practice is *story machine* (Schell, 2008), but they both describe the same core idea: a system's ability to produce narratively meaningful scenarios through players' interaction with it, but without a scripted sequence of story beats like an authored experience tends to have.

Emergent narratives are usually what is happening presently or synchronically, much like how the real world is experienced. However, unlike our unmediated reality, the factors limiting the available actions are different, since we are interacting with something that is created, or indeed authored. That is, we are exploring the possibility space of the game design, not the limits of what is socially acceptable.

That is to say that even if the stated goal of a game design would be to give the player as much freedom as possible in, for example, narrative sense, all possible actions are still something that the developer has explicitly enabled for the player, even if this is unintentional or unanticipated. However, this of course does not mean that all possible combinations of player action are intended plotlines – a parallel can perhaps be drawn to the social factors that limit the actions available to us in the unmediated reality. The experiential aspect can be described as being co-authored, although this of course does not mean that the type of authoring is the same. Therefore, it is necessary to distinguish between narratives that have been written to be experienced (authored narratives) and narratives that are born from player action (emergent narratives). Perhaps a parallel can be drawn to the Barthesian distinction between readerly and writerly texts, which refer to the varying degrees of authorship a writer is willing to lend to the reader to be exerted during the reading process. (Barthes, 1974, p. 5-4)

The most notable examples of games that are almost entirely based on the emergent potential of their systems are the games of William Wright, although he would probably prefer to call them simulations: *SimCity*, (1989) *SimEarth*, (1990) *SimAnt* (1991) and perhaps his best known work, *The Sims* (2000). This design is commonly referred to as ‘sandbox’ design, referring to the seemingly non-structured play they enable. Principles of 'true sandbox' design are applied more loosely to other genres as well, such as action in the *Grand Theft Auto III* (2001) or survival in *Minecraft* (2011).

3.3. The Dream

In the sci-fi television show *Star Trek: The Next Generation* there is a room aboard the *Enterprise-D* that allows the crew members to participate in computer-generated virtual experiences. This room is capable of creating a believable illusion of fictional environments and characters that are indistinguishable from real people to anyone who enters the room by using something known as "holomatter" on which holographic images can be projected and that can be touched and manipulated like it was real. For game design, the interesting thing about the holodeck, however, is not necessarily the representation, but that which is represented: the interactive narratives that the characters of the show are able to participate in. The narratives do not have a set course, but are simply composed of events and individual actors that go about their lives and interact with the user.

The dream, so to speak, of creating "interactive narratives" like those experienced on Star Trek's holodeck was the crux of Murray's seminal *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* (Murray, 1997). She seems to have a prescriptivist approach to game design, implying the holodeck is what games should strive for. Supposing a device like the holodeck will not be invented any time soon, those kinds of experiences would prove interesting on a VR-headset or even on an ordinary monitor, as well. That will, however, be difficult before artificial intelligence is capable of simulating our understanding of a narratively satisfying sequence of events; until then, the closest things to a holodeck-style narrative experience are still pen-and-paper roleplaying games run by humans, like *Dungeons & Dragons* (1974).

Many have taken this to mean that we should not attempt to use interactivity as a storytelling method at all. For example, Schell (2008) presents two methods for storytelling in video games: *String of Pearls* and *Story Machine*, which are roughly equivalent to the concepts of authored and emergent narratives discussed in the previous section. Schell works from a practical game design perspective, and he is describing the status quo of video game design practices. However, a distinction needs to be made between narratives that are experienced interactively and narrative structures that can be interacted with, the former of which Schell seems eager to disregard entirely.

Video games are still a relatively young medium and the language of video game design is in a constant state of flux, as developers experiment with different ways of creating meaningful experiences for the player. Similar to how early film was heavily dependent on the tradition of theatre and failed to utilise the camera as a creative and narrative tool before creating its own language of expression, video games are still reliant on conventions of other narrative media, as well as traditional games. Unfortunately, I do not believe time will be kind to the video games of our time; not because the graphics will be outdated, but because the design will be outdated. There will be the 'classics' that will be held in high regard for innovating on a certain aspect, but gamers of future will be bored and frustrated with our games exactly like a cinema-goer today might find watching a black-and-white film with the exaggerated acting of theatre and static camerawork lacking. Film has ascended from being an emulation of theatre; similarly, video games will eventually ascend from being emulation of traditional games and film and embrace the intrinsic semiotics of the medium as a viable art form.

3.2. The Functions of Narrative in Video Games and Video Game Research

The lead developer of the hugely influential first-person shooters *Wolfenstein 3D* (1992), DOOM (1993) and Quake (1996), John Carmack infamously said during the development of *DOOM*: “Story in a game is like a story in a porn movie. It's expected to be there, but it's not that important.” (Kushner, 2003) Carmack's games are the embodiment of this philosophy. The authored narrative content of *DOOM* is more a premise than anything else and even that is communicated through the

physical game manual rather than the software itself, meaning that even the little there is resembling a story might be lost to the player, although this does not mean it does not exist.

This is not mentioned to belittle Carmack's approach to video game design. In fact, it is a storytelling method that is very natural for video games. The gameplay in Carmack's games is not interrupted by lengthy story sequences, which would only negatively affect the delivery of a fast-paced, atmospheric experience of being isolated on a moon base overrun by demons – a design philosophy that was replicated for the 2016 reboot of the *DOOM*-franchise to critical acclaim amidst the story-driven AAA experiences of our time. It is nevertheless a somewhat cynical view of the *possibilities* the medium has for storytelling purposes and also reflects Carmack's definition of what a story is; he does not consider the gameplay to be part of the story, yet the story is written all over the demon-infested corridors of the UCA facilities on Phobos and Deimos.

At the other end of the spectrum, video games from story-heavy series like *Uncharted* (2007) and *Assassin's Creed* (2007) emphasise the narrative to such degree that they are sometimes willing to compromise the enjoyability of the experience to tell a story – in cases like these, the story becomes the driving force of the experience and the quality of writing, cinematography, voice acting and such largely determine how enjoyable the experience is. But even in these story-focused experiences, the narrative acts merely as a motivation-and-reward system to urge the players to keep on playing through similar gameplay scenarios – not necessarily a story for story's sake, which often leads to very unengaging stories.

However, video game stories do not have to limit themselves to merely providing a narrative framework for making sense of the instant-gratification action. Sometimes the entire concept for a game is its narrative and the method of narration, perhaps best demonstrated by *Hellblade: Senua's Sacrifice* (2017), which the YouTube video-essayist Hamish Black says is

> [...] flat-out rejecting the notion of fun. [...] It is not trying to be a fun game that also happens to be about mental illness. It exists purely to tell a specific story about specific suffering. (Black, 2017)

Like literature and film, video games can deal with serious themes and what is interesting about *Hellblade* is also the fact that it often opts to tell its story through gameplay elements, instead of cutscenes or another type of exposition. Although the representation of psychosis might ultimately be flawed, as Lacina (2017), for instance, has suggested, this kind of an approach could not even be attempted through any other medium, and the game serves as an example on how the medium can be used to communicate elements of the story in novel ways, as well as definitively demonstrating that video games can be a platform for even the most serious types of stories.

It can be concluded that the purpose and importance of narrative in video games varies greatly. Games are not intrinsically reliant on narrative, and in many cases it can and has been argued that the narrative content is an unwelcome distraction from the game proper. Additionally, story can be used to make sense of otherwise obscure game mechanics, as is the case for many Nintendo titles and especially for games in *The Legend of Zelda* -series. For the seminal *Ocarina of Time* (1998), the time travel mechanic was added because Miyamoto-san wanted to see a "cute little Link" alongside his adult form (Osawa, 2011) and for *A Link Between Worlds* (2013) the antagonist was designed to be an eccentric artist in order to explain the gameplay mechanic of merging into walls as a mural (Shikata, 2013).

The essence of video games are the gameplay systems and mechanics: imagining a game without them will result in imagining a film. A story cannot be a game without gameplay, but gameplay alone can make up a game, although it is worth noting that depending on the game's representation, actualising the gameplay often results in a narrative being created. Yet, the existence of an authored story is, indeed, unnecessary. It is equally possible to pair sub-par story with generic gameplay, but where video games shine as a narrative medium is when a developer fuses gameplay and story together in a way that feels organic and natural for the medium.

3.3. Affordances of Video Games as a Medium for Storytelling

Bogost (2017) argues that television and literature simply “tell [stories] better” than video games. Bogost goes as far as to claim that "the best interactive stories are still worse than even middling books and films" and that video games' obsession with trying to tell stories is holding the medium back. However, in light of the discussion in the previous section, I find this position difficult to argue credibly. Moreover, this line of thought is the direct result of evaluating video games as if it were film and disregarding its unique qualities. This is no ground to make universal claims about the medium, as no-one would claim that the inherent differences between film and literature make one a preferable medium for storytelling. Video games tell (or could/should tell) stories differently. This section explores two questions: how can video games benefit from narrative structures and how can the affordances of the new interactive medium further the possibilities available for storytellers.

Murray (1997) argues that we have reached the limits on what kinds of stories can be told in film and literature. She cites temporally interesting films such as *Groundhog Day* being significantly held back by the fact that the ideas are executed on a linear medium (p. 41-43). And indeed, we have witnessed video games experimenting with temporal structures, such as Nintendo's *The Legend of Zelda: Majora's Mask* (2000), Squaresoft's *Chrono Trigger* (1995), or the critically acclaimed 2016 indie title *Oxenfree* by Night School Studio. While I do not necessarily agree with Murray's claim that a limit has been reached for literature or film, video games do certainly possess a unique capability of exploring action and consequence.

This is a key concept in Murray's book and she calls it *dramatic agency*. To her, agency is the "satisfying power to take meaningful action and see the results of our decisions and choices" and one that "goes beyond both participation and activity" (p. 290). Dramatic agency refers to the ability to actively engage with the fictional world as opposed to merely enacting a script. The success of games like *Mass Effect* (2007) and *Skyrim* (2011) suggests that the feeling of agency is in demand, as different as it is in both of those cases.

Considering that the most obvious difference between narrative video games and film to an external observer is the fact that the player is, unlike the filmgoer, interacting with their medium, it is

understandable that the difference in storytelling is seen to also be related to this interactivity and that the new medium would offer a way to make cinema interactable. And in many ways, it is; yet the target of interaction is widely misunderstood to be the characters and the story of the movie. This vision is, for the time being, far beyond the reach of the medium's capabilities. The player is not the storyteller, as many have grandly proclaimed. NPCs are typically just as static as characters in a film are, and dialogue options merely branch the narrative. Choosing between alternatives is not interaction, it is merely an action similar to navigating a hypertext, but does lend the player a sense of co-authoring the experience. However, this needs to be distinguished from the authoriality of the work itself, which typically remains with the developer.

Similarly, one might consider a game of football: a football player does not touch the ball with their hands because the rules decree that you are not allowed to do so. Breaking the rules would have repercussions for the player and their team. In a way, one has negotiated the rules by which they abide while playing football. In video games, there is usually no such negotiation: The player does not touch the ball with their hands in a football simulation game because it simply is not possible, as no button combination the player can perform is programmed to grab or hit the ball with a hand. DeLeon (2013) is approaching what I believe to be a more accurate way of understanding the possibility space of video games: in real-life games the player chooses to adhere to the rules, but in video games, the “rules” are closer to the laws of physics: they cannot be circumvented (barring some very specific circumstances like modifying the game code). Therefore, everything the player can do in the game, is made possible either directly by the developer or as a result of interacting with the systems they have created.

This also pertains to the use of the word rules when describing a video game: unless we are willing to say that the gravitational constant is a rule of football, video games primarily do not have rules, as is commonly argued (cf. Juul 2005, Järvinen, 2008), but rather mechanics. Although DeLeon’s argument is that rules are simply different in video games compared to physical games, I will refrain from using the word ‘rules’ when it pertains to video games, unless it refers to something the player(s) agree on whether that is in-game or outside of it to avoid confusion about the nature of game mechanics. Using the word rules to describe video games is of course not common outside of the field of ludology, whose implicit goal is to connect video games to the standard notion of games,

which cannot exist without rules. Considering modern video games an extension of traditional games confuses the nature of video games every bit as much as the derided narratological approach of examining video games.

For full narrative agency to be possible in video games, the computer would need to be able to act like a dungeon master does; capable of adapting to the player's actions and improvising new stories and characters. Additionally, there is the problem of input: the computer would need to reliably understand and produce natural speech, although it seems like that goal might be reachable eventually. Some attempts have been made at games utilising AI to respond to natural language, like *Façade*, (2005) but these are rare still. Therefore, to examine the possibilities of the current state of technology, the next section will examine semiosis in video games as they exist currently.

3.4. Semiotics of Video Games

This section details the semiotic modes available to video game developers, with a focus on the recurring methods of combining them, i.e. the current development practices for narrative design in video games.

As a computer-based medium, video games have at their disposal a great variety of modes: written text, images, 3D graphics, music, sound effects and full-motion video. The way these modes are combined in video games is primarily dictated by the traditions of video game design: textboxes represent character speech; videos further the story between gameplay segments; sound effects communicate fail/win states etc. These types of conventions can be considered a part of the language of video game design, which not only guides designers, but also the players in navigating the possibility spaces. What follows is a brief description of the most common ways to utilise the semiotic modes of computer-based media for the construct known as video games. Most of the semiotic modes described here are what Kress and van Leeuwen would consider "multimodal ensembles", (2001) meaning that they are comprised of several semiotic resources (such as verbal or visual) that act as one according to common communicative practices.

3.4.1. Suspension of Disbelief

Tolkien famously proposed the concept of a secondary reality and argues that *suspension of disbelief* is only necessary when the fiction is too inconsistent to believe in, as opposed to Coleridge's original formulation, which puts the burden on the reader's willingness to suspend their disbelief:

> [Literary belief] has been called "willing suspension of disbelief." But this does not seem to me a good description of what happens. What really happens is that the story-maker proves a successful "sub-creator." He makes a Secondary World which your mind can enter. Inside it, what he relates is "true": it accords with the laws of that world. You therefore believe it, while you are, as it were, inside. The moment disbelief arises, the spell is broken; the magic, or rather art, has failed (Tolkien, 2008/1947, p. 565).

This section will lay the foundation for an argument: in addition to the potential for deeper immersion, video games also have a greater risk for breaking immersion because of their wider variety of media that need to be incorporated into a cohesive work.

There are several reasons for this, and variation in form is one of these. Although variety is an aspect of the medium that implies great potential, the fact that film and literature have certain conventions helps authors in their pursuit of convincing the recipient that their fictional worlds and characters exist in a secondary reality. Similar to how a typographical error or the camera operator's shadow might remind the recipient of the indirectness of their relationship with the fiction, video games have a number of ways to break the immersion. The simplest analogy to these (although spelling mistakes and visual ques can both still be an issue) is a programming error, a bug or a glitch, but there is a greater variety of issues at play. Video games are still a relatively young form of media, and technological advancements mean that developers do not have consistent medium to perfect an art form on.

Everything that reminds the player that they are playing a video game can result in having their immersion broken, which means that it is virtually impossible to create a game that does not have the potential for having a user's immersion broken. Unintuitive controls or unexpected button

mapping, invisible walls at the edge of the game world or a way of restricting player access that is perceived as being not credible and intrusive user interface elements. These elements, although often a result of poor design practices and technological limitations, are often willingly overlooked by gamers as something inherent to the medium. Someone who wants to enjoy a video game story often needs to be willing to suspend their disbelief, as opposed to how Tolkien describes it happening without a conscious though or decision when the work is coherent.

Video games have lots of modes and different ways of interacting with various systems and mechanics, which complicates the process of weaving all the elements together while simultaneously accentuating the importance of coherence. However, I realise that the reverse could be argued as well: that the fact that it is so difficult to accomplish suggested that it is not natural or needed in the medium. Save for some specific edge-cases exploring the limitations of a given medium, coherence is a generally favoured quality of all media and will form the basis for my approach to studying narratives in video games.

3.4.2. Systems and Mechanics

Mechanics are what define a video game: a video game must have some kind of a mechanic to be considered one. As discussed earlier, video games can be seen as an art form exploring the mechanics and while that alone does not necessarily imply any narrative dimensions, or even necessarily a communicative modality, mechanics can be used to convey ideas to the player that are crucial to the story, as seen in the *The Last Guardian*-example above.

Moreover, mechanics are capable of communicating ideologies. *Mafia III*, (2016) for example, has been praised for its portrayal of systemic racism through gameplay mechanics: in addition to white women clutching their purses when the (black) player character walks by, the police are less likely to track the player down if they commit a crime in a black neighbourhood or against an African-American NPC, as opposed to white neighbourhoods and white people (Elderkin, 2016). Essentially, the game makes it possible to experience some of the effects of racism faced by people of colour in a more involving way than traditional media does.

The benefit of designing ways to tell a story through systems and mechanics is that they are the semiotic mode intrinsic to video games. Systems and mechanics lay the foundation for emergent narratives, but are also very effective in communicating an authored narrative, usually combined with other modes, since systems perhaps lack the kind of specificity most authors would desire to have.

3.4.3. Environment Telling a Story

One of the main findings of *The World Hobbit Project*, a research project focused on audience responses to Peter Jackson's *The Hobbit* -trilogy, was that the audience was generally pleased to be able to return to Middle Earth – despite the fact that many of the same people also voiced the opinion that the films were disappointing (Barker & Mathijs, 2016). This speaks to not only Tolkien's world-building, but also to the importance of world design – and video games are in an especially privileged position when it comes to the environment: whereas the worlds of film and literature rely on the imagination to fill in what has not been explicitly described, the worlds of video games have tangible, navigable dimensions.

While not necessarily a singular semiotic mode, environmental storytelling is a widespread term used to describe the kind of non-verbal methods of conveying information to players. This information can relate to guiding the player through the challenges laid out for them, like the light and framing are used in the *Uncharted* (2007) series, but also to tell the story. A more interesting example of this from the narrative point of view is when the environmental design is used to convey the story. A classic example of this is comes from Nintendo's *Super Metroid* (1994): In the game's title screen, the player can see a specimen of the titular alien creature, metroid, in a container. When the player reaches the location depicted in the title screen, the container is broken, and the metroid has disappeared. It is a simple example of an effective way to communicate plot points without an artificial separation between narrative and gameplay. Jenkins & Squire (2002) call these *spatially constructed narratives* and even go as far as to claim that they are the only way a game (in

the strictest sense of the word) can tell a story, although I am inclined to disagree with this based on what has previously been discussed in this paper.

Another approach to creating drama through environmental design can be found in the contemporaneous *The Legend of Zelda: A Link to the Past* (1991). Describing the design of the beginning of the game, *Kotaku*'s Tim Rogers articulates the point:

> Notice the usage of multiple vestibular rooms to pace out the significance of Zelda's dungeon cell. [...] This is how you create drama; it is a super-elementary example of creating drama with level design (Rogers, 2018).

Before this point, the player would have been traversing rooms that are occupied by guards and contain treasure chests, keys and locked doors. The fact that the player suddenly enters a simple corridor without any blocks to progression signals a change of pace, which accentuates the dramatic impact – a type of narration through level design if you will.

However, the more common and entirely separate method also dubbed environmental storytelling can be found in games like *Horizon Zero Dawn*, (2017) *Doom*, (2016) and *Gone Home* (2013). In these the player is able to explore the environment to locate pieces of background information that are narrativised as written notes, different data storage mediums or recordings that reveal information about what has happened prior to the synchronic narrative of the game, i.e. the diachronic story. Bogost sees this as a "shortcut," explaining that it is not truly an interactive narrative "when all the player does is assemble something from parts" (2017) Bogost's argument seems to be grounded on the false assumption that unless the narrative itself is interactive, interactivity has no place in the experience. Interactivity’s role in non-interactive narratives will be discussed in more detail in section 3.4.7.

3.4.4. The Cinematic Influences

Cinema has influenced storytelling in video games perhaps more than any other medium – a fact that can be seen in the very name of medium (after all, we could use the much rarer terms *digital games*, *computer games* or, even, “interactive audiovisual experiences” (Arsenault & Perron, 2015) – but on a conceptual level, this is curious. Why, in an interactive medium, would all control and agency suddenly be taken away from the player to imitate the storytelling methods of an older form of entertainment? If the storytelling ambitions are of cinematic variety, why are they expressed through a non-linear, interactive medium?

This, I believe is primarily for historical reasons. To look for a model in another medium in the early days of the medium seems a likely practice due to the lack of existing paradigms for interactive storytelling. These conventions have now become so ingrained in the construction now recognised as video games that it is difficult to imagine a story-oriented game without cutscenes – in fact, "cinematic" is a marketing buzzword thrown around a lot in the industry, although this can refer to a variety of things from graphics that strive for realism to dynamic camera systems and does not necessarily relate to narrative depth but rather to some vague concept of the feeling or appearance of being cinema-like.

Since then, the notion that cutscenes are inherently detrimental to the medium has arisen. Games like *Metal Gear Solid 4: Guns of the Patriots* (2008) gained infamy for having cutscene sequences up to 70 minutes, begging the question of whether it would have made more sense to make a movie instead of a video game. Cutscenes (as is implied in the term) interrupt the gameplay, at worst taking the player out of a possible *flow* or *zone*, which can be a jarring experience. At the very least it can be argued that cutscenes break the immersion and explicitly remind the player of the fact that they are playing a video game. Using cutscenes as a tool for narrative design therefore requires careful consideration of their appropriateness for a given situation.

Even when there is no added interactivity in cutscenes, however, they differ greatly from that which they imitate. Cutscenes in video games have the advantage of leveraging the player's experience with the subject matter – or, in other (more cynical) words, games get away with less because the

player is already invested in the story in a way they are not in non-participatory media. Cutscenes are perhaps best utilised at moments where the gameplay has peaked in difficulty or reached a plateau. In cases like these, the cutscene can act as a reward of sorts to help pace the gameplay, while also adding some depth to the game's narrative.

3.4.5. Press F to Pay Respects

To avoid player passivisation during a cutscene, designers sometimes attempt to combine the cinematic cutscene with some interactive elements such as timed action prompts, reminiscent of the full-motion video games of the late 80s, where the player was prompted to press a specific button quickly enough to continue the video that was being played. However, just like their FMV counterparts from decades ago, these *quicktime events* or QTEs were long derided and have begun to fall out of favour. QTEs are interactive only in broadest sense of the word, being equivalent to a video player that will rewind unless you press the play button quickly enough when prompted to do so, taking the focus away from the scene and not affording much agency to the player. Although there are some applications that are less offensive than others, more often than not QTE's are unsuccessful at engaging the user both as interactive entertainment as well as serving as a cinematic intermission or gameplay pacer, suggesting an explanation for players' distaste for them.

3.4.6. A Tale of Interactive Cinema

Telltale Games' *CSI: 3 Dimensions of Murder* was the first instance of what would become known as the Telltale formula: the narrative-driven pairing of animated film, dialogue choices, QTEs and some choose-your-own-adventure type of decision-making sold in an episodic format. While Telltale Games is still the most notable developer making these games, other studios have used the formula as well. (c.f. Dontnod Entertainment's *Life Is Strange* (2015) or Netflix's *Black Mirror: Bandersnatch* (2018)

The appeal of the Telltale formula comes from the narrative, similar to film – Telltale's success is largely built on captivating storytelling that keeps players wanting to experience the next episode. But whereas film is an entirely passive medium, Telltale's games allow for a certain level of player expression.

In *Batman: The Telltale Series* (2016) the player is faced with a decision of saving either of two familiar characters: the mayoral candidate Harvey Dent or Selina Kyle. In several Batman stories (cf. Finger, 1942 or Nolan, 2008) Harvey Dent is a district attorney aspiring to make Gotham a better place through lawful means. The disfiguration of his face has always been part of why he transforms into a villain, and has for a long time been one of the most notable what-ifs of the Batman universe: could Harvey Dent truly have made a positive difference in Gotham? One would then assume that faced with the choice described at the beginning of the paragraph, *Batman: The Telltale Series* would be an opportunity to explore this alternative version of the Batman universe. Yet, no combination of choices the player makes, including preventing Dent's face from being burned by being hit with a stage light, is able to keep him from becoming a villain.

One might argue that this is a philosophical statement about the city: that Gotham truly does corrupt everyone and that Batman's efforts are ultimately futile (c.f. DC Comics, 2015). However, a simple exercise in math will reveal the much more banal reality: five polar choices that branch the narrative in a meaningful way each episode over a five-episode season would require $(2^5)^5$ different endings to be written for the game, not to speak of all the different scenarios leading up to those conclusions. That is 33 554 432 different endings, all of which need to be satisfying narratively. Even one meaningful story branch per episode requires 32 different storylines, understandably leading to a situation where choices in video games rarely affect more than a couple lines of dialogue.

Branching narratives may also create frustration, as the player is always thinking about what the other alternatives would have led to. Reaching an ending is not satisfactory enough: instead one searches online for the alternative endings to see if the one they got was the “good” ending.

3.4.7. The Language of Video Games

Considering that Holodeck-style interactive narratives are not possible by manually crafting all possible narrative arcs and that artificial intelligence is not yet capable of producing them procedurally, the role of interactivity in narrative design will be limited if we understand it to mean that the player has the capability to meaningfully alter the course of the plot. However, there is a lot of untapped potential in using interaction, mechanics and play to mediate meaning. This can be seen in some of the more ambitious games of recent years, like *Hellblade: Senua's Sacrifice* (2017) and *The Last Guardian* (2016).

As I have already mentioned, *Hellblade* depicts the experience of living with psychosis. An example of how this is achieved is how the game teaches the player to see rune-shapes in the game's environment. This might, for example, take the form of looking at a set of trees from a specific angle. Finding this pattern does not physically alter anything, but it allows the player to proceed through doors that Senua is convinced cannot be walked through and will not attempt to open before finding these runes – a process that emulates the hallucinatory-delusional symptoms of psychosis and disorganised, tangential thinking in which the player gets to participate. The developers have attempted to weave the experience of psychosis into every aspect of the game, providing a layer of consistency to the whole experience, while simultaneously dismantling the notion of dichotomy of narrative and gameplay. When the player fails a combat scenario, for example, it is narrativised as a hallucination Senua has about her death and the spreading of her "curse", which, the game promises, will eventually delete the player's saved progress, keeping the player on their toes and implicating them in the psychological horror of the game.

Another compelling example comes from Brown (2017), who contrasts similar pivotal moments of character development in genDESIGN's *The Last Guardian* (2016) and in Naughty Dog's *The Last of Us* (2013) to argue that the former is more impactful because it uses the language of video games to communicate said development. Whereas the *The Last of Us* delivers the moment through a cinematic cutscene, *The Last Guardian* does this by breaking the established rules of the game. The game establishes early on that the bestial companion character Trico is afraid of the stained glass eye-like objects found in various areas of the game, which the player has to break or remove for

Trico to be able to enter. As the bond between the player character and the creature deepens (which is communicated through careful changes in the animation of Trico's body language during gameplay), the player character's safety becomes more important to the animal than its fear of the eyes, and he is able to save the player character in a seemingly impossible situation.

To explain the perceptual difference, Brown proposes the idea that video games are a form of art exploring interaction: mechanics, rules and systems. When these elements, intrinsic and exclusive to video games, are used as a device for telling stories, the artificial separation of story and game begins to dissolve. Unlike the gameplay-based approach of *The Last Guardian, The Last of Us*' Ellie reveals her attachment to the player character in a cutscene, when she deviates from the Ellie-does-not-use-guns plot device. One could argue that the player is transported from playing a video game to watching a movie with the same characters – and one would not be entirely unjust in their assessment.

In an interview with *The Guardian* (Stuart, 2016), Fumito Ueda, the director of *The Last Guardian*, states that the creative incentive behind the game was to explore the mechanics of an emotional and meaningful relationship – not simply explicitly explore it as a narrative construct. Story can be used as a structure that contextualizes the ludic elements of the game, provides motivation and urges to keep on playing.

> *The relationship between Wander and the horse [in Shadow of the Colossus] was the most important and appealing – we got the sense that this was what most people felt. I thought OK, if that's the case, there are a lot of mechanics from that relationship that we could heighten and expand on. That's where The Last Guardian came from* (Stuart, 2016).

To begin understanding this type of narrative potential of gameplay, Seraphine (2014) adapts Peircian semiotics to use the concepts of action, interaction and fact – the *actum*, the *tactum* and the *factum*, which construe a *ludophrase*. Actum refers to any in-game sign that is the direct result of player input, i.e. the 'verbs' of gameplay. An example of this would be pressing 'A' to make Mario jump. Tactum refers to any action facilitated by a non-player object that affects the player character, such a flower granting Mario the ability to throw fireballs (which is then an additional actum

available to the player). Factum is an action between game objects that are not directly related to the player object, but have the potential to affect the game state, such as the interaction between a question mark block that releases a fire flower. A ludophrase, then, as one might guess, is the syntactical combination of these interactions of objects within the game state (2014, pp. 30). Mario jumping on a question mark block and releasing a fire flower and then grabbing it is an example of a simple ludophrase.

The ludophrase is a compelling unit of analysis for narrative in video games, since it allows for the examination of player interaction as narratively-motivated action. Utilising this framework, it is possible to better understand Brown's *The Last Guardian* -example above: the game establishes an internal "grammar" by repeating certain ludophrases. The glass eye is a repeating object that has a *factum* relationship with the companion object Trico. Since Trico is required for advancing the game state, this requires the player to facilitate a ludophrase: breaking the eye. Doing so changes the factum: Trico can now approach the eye and help the player advance the game state. Deviating from this pattern of repeating a ludophrase, an act which can be contrasted with rules of the game is unexpected and therefore raises the question of why did the rules change. The answer, of course, is to serve the narrative: selling the character of Trico as an independent actor with a mind of its own.

We may conclude this chapter with this intentionally provoking passage from Seraphine, implying he considers ludophrases a more viable approach to storytelling than the choice based interactivity:

> The common belief concerning storytelling for video games is that we should aim at telling “interactive stories”; and it is indeed a noble goal, and a difficult task. Perhaps should we simply aim at telling a story – may it be linear or interactive – with interactivity as a semantic tool. (2014, p. 6)

3.5. Coherence and Cohesion

Arguments like Bogost's "video games are better without stories" (2017) or Frasca's distaste of the "narrative paradigm" (2003) are perhaps a symptom of something other than the inherent qualities. The crux of these arguments is that video games are inherently so different from narrative media that considering them as one is detrimental to both video game design and understanding the medium from an intellectual perspective. Frasca's argument that games are a semiotic mode different from narratives is certainly a convincing one, but not necessarily one that needs to dismiss the existence of a narrative within the 'simulation', as he somewhat belligerently names this mode. Instead of clarifying what video games are as a medium, Frasca's dismissal of the narrative obscures the nature of experiencing video games, as well as disregards a great deal of research that can help in understanding video game narratives.

In text linguistics, coherence is defined as a "continuity of senses", (Beaugrande & Dressler, 1981, p. 84) which, while applicable to video games in a broader sense, was not devised for a medium encompassing more than one mode (textual). Van Leeuwen (2004) has expanded the notion to encompass multimodality, that is, media that comprises several modes. Specifically, he speaks of *multimodal cohesion*, which describes the integration of different modes into one multimodal text and how this is realised through composition, dialogue, information linking and rhythm; concepts that can be adapted to encompass the simulation. This provides the starting point for understanding coherence and cohesion in video game design in this thesis and how game designers can leverage the different modes available to them in a way that benefits the whole and helps it be perceived as *one* instead of a collection of fetch quests, cutscenes and a great soundtrack.

In *Horizon Zero Dawn*, Aloy's primary weapon is her bow. Mechanically, the bow is not attempting to imitate shooting a real bow – in fact the mechanics are quite cartoony for a game that attempts for such high level of realism with its visuals. For example, the arrows curve mid-air to compensate for targets that make unexpected movements between firing the arrow and them landing. However, using the bow feels right, due to how its design is perfected through all modes available to the developer. Drawing the bow involves pulling both of the analogue triggers of the PlayStation 4 -controller: pulling the left trigger raises the bow and moves the camera behind Aloy's head to allow

for precise aiming while pulling the right trigger draws the bow – releasing it will then fire the arrow. Since Aloy is holding the bow in her left hand, this control scheme provides a tactile resemblance to the in-game activity. The sound that accompanies stretching the bowstring sounds very tense and creaky – thanks to Hollywood – and is matched by subtle vibrations from the controller's rumble motors that feel like what the bowstring sounds like.

Releasing the arrow, then, feels equally satisfying both through the haptic feedback of the controller as well as the audio design. Principal Sound Designer Anton Woldhek explains his philosophy for engineering the bow's soundscape:

> [translating] the experience of firing a bow into something in the game, which might not sound really like a bow sounds like but more gives you the emotional response that you would have firing a real bow (Polygon, 2018).

Indeed, the snap of the bowstring in *Horizon Zero Dawn* does not sound like the high-pitched snap of its real-world counterpart, but rather it sounds almost like firing a pistol. Considering the fact that Aloy destroys towering robots that resemble large beasts and dinosaurs with the bow, this makes more sense than a realistic bowstring effect would in this context. Similarly, the sound her arrows make whizzing towards their targets communicates both power and speed by being a lower-frequency hum similar to something much bigger than a simple arrow cutting through air a a high velocity. However, if the player tries to fire arrows too fast, the sound effects will match the lesser damage the arrows are dealing. Sound effects and haptic feedback are a major part of communicating the optimal time to fire an arrow as well, since the player rarely has time to watch Aloy's animations during a combat sequence.

Worth emphasising is the fact that the arrow mechanics are not great because they are in any way realistic because that is certainly not the case – bows don't vibrate or creak when drawn and the arrow trajectories do not make sudden changes after being released – but because they are consistent across all different modes and follow an internal logic of the game world, which can, and often is, deliberately distinct from real-world logic.

Shooting the bow in *Horizon Zero Dawn* serves as an example of *coherence* in video game design: The control scheme mimics the physical activity it is controlling in the fiction; the controller feedback feels like the sound effects, and these two combined communicate the game mechanics and the power of the arrows, which in turn is directly related to the game's story.

Clint Hocking's influential blog post from 2007 discusses some of the problems he sees with Bioshock's (2007) narrative in relation to its gameplay elements. Specifically, he focuses on the conflict between player action and the story of the game, a type of internal inconsistency that he describes as *ludonarrative dissonance*. Although framed as a detrimental feature of video game stories, it has been advocated that this dissonance can also be deliberately used to create a dissonant feeling in the player to, for example, comment on game design principles (Seraphine, 2016).

This is a useful term for critiquing games, but perhaps not the most productive. A counterpart for ludonarrative dissonance comes from Brice (2011): *ludonarrative resonance*. This is defined as an instance "when the emergent qualities echo and strengthen the embedded narrative (or the overall design)". This takes a stance closer to how literary criticism looks at, for example, poetry, i.e. what the form of the poem can do for the overall design of the work. Ludonarrative resonance (and/or dissonance) is therefore a very specific aspect of coherence/incoherence in game design that describes the relation of ludic and narrative elements in a game design.

Perhaps the most common notion of coherence in video game research comes from Juul, (2005) who uses the term cohesion in the context of game worlds. To him, games that offer the player extra lives like *Donkey Kong* (1981) present *incoherent* game worlds. This is grounded on Juul's retelling method of determining the plausibility of the fiction: the fact that the reappearance of Mario is not explainad in the fiction of the game and that players generally appeal to the rules (as Juul uses the term to broadly refer to game mechanics) of the game to explain it. To him, the experience of playing *Donkey Kong* is not incoherent, but only if we examine it as a rule-based system and not as a narrative, a view he considers the only viable one based on, again, the fact that players explain the lives system as a game mechanic.

I will not defend *Donkey Kong* as the pinnacle of storytelling in video games; however, considering its world incoherent based on a life system, which exist outside of the fiction, is irrational. He is correct in that *Donkey Kong* benefits more from a purely ludological analysis than a purely narratological one, but the implications of considering every game world that is paired with a reappearing character categorically incoherent has some serious implications, as does considering extra-fictional elements being part of the fiction.

Juul recognises this, as he goes on to describe Half-Life as a *coherent world* game. Using Juul's own retelling method of determining whether a game world is coherent or not, Half-Life fares no better than *Donkey Kong*. While he does not explicitly explain the difference, it seems that because Half-Life does not limit continues, i.e. there are no 'lives' and the game simply returns to an earlier game state when the player dies that there is no game mechanic that is left unexplained by the fiction. However, to play the devil's advocate as Juul does with *Donkey Kong*, Half-Life does not explain how time is rewound either. The only meaningful difference between *Donkey Kong*'s and *Half-Life*'s continue mechanics is fact that a PC game's monetisation is not based on enticing children to spend their lunch money by providing a limited number of continues per quarter and should therefore not be a basis for describing the coherency of a game's world. Neither the extradiegetic lives system of *Donkey Kong* or the inexplicable rewinding of time in *Half-Life* is an element of design that affects the perceived coherence of the narrative.

Although mechanics like retrying or saving the game state are often extradiegetic, some games bring these mechanics into the narrative and thus into the diegesis. This does not inherently add to the coherence of the game, as it all depends on the execution. Examples of this include *Prince of Persia: The Sands of Time* (2003), where the narrator notes that he has misspoken when the player character dies and *Okami* (2006), where the Origin Mirrors (which act as save points) are worked into the lore. However, the dismissal of the vast majority of games that do not as incoherent is detrimental to understanding coherency on a more general level. In these examples, the mechanics are, as opposed to Donkey Kong, diegetic to some extent. In text linguistics, coherency and cohesion are related to the readability of a text; retry mechanics are not detrimental to what might be called the readability or intelligibility of the game. Juul's confusion about the fictional reasoning for Mario's reappearance is a fabricated one – he is quite possibly the first player of *Donkey Kong* to consider

magic and reincarnation as explanations for the lives system. The fact that his "informal survey" of players revealed that they all explain the lives as a game mechanic rather than being confused about narrative continuity is proof to the opposite of what he argues: that the mechanic is communicated clearly and coherently in the game.

The shortcomings of a purely ludological analysis stem from a black-and-white, either-or thinking. The premise seems to be that if games are narratives, the narrative needs to be responsible for all aspects of the design. This is of course done because such a premise is easy to disprove. Yet, few will claim a horror movie is incoherent because of the protagonist's inability to deduce from the ominous music that a danger is lurking behind a corner, as the music does not exist in the fiction. Nor do people consider the incrementing numbers at the bottom of a book's pages confusing. Similarly, in the fiction, Mario does not have three lives and thus it is unreasonable to disregard the narrative dimension as incoherent based on such a factor.

The problems with coherence begin as the game's complexity increases. This is present, to some extent, in most modern games but as an example one might consider this grass in *Pokémon Ultra Sun* presented in Figure 1:

Figure 1. This grass is designated walkable…

…but this foliage is impenetrable.

When put side to side, it is clear how the game attempts to communicate the fact that the grass on the right is not traversable, as it is slightly elevated. Not being able to walk on that specific grass is significant to the game design, as it bars the player from circling the fence on its right side. For the player, however, it might be almost insulting that this bars their progression in the game, as traversing it seems like it would be a trivial effort for the player character. The game mechanic would

be both more understandable and easier to accept if its representation more closely matched its function of blocking player movement as if it were a stone wall. This does not, however, mean that coherence needs to follow real-life logic: a psychic-type Pokémon casting a magical barrier would be a similarly coherent way to represent a wall-type game object within the fiction.

Figure 2. A wall-type object can also be represented extradiegetically.

Unlike Mario's lives, this game mechanic is represented in fiction and needs to be done so in a coherent manner, which is something the game manages only questionably. The problem is that the game object functions like the rock face to its left side or the fence to its right but is represented by something that seems like it would be only slightly inconvenient to walk on. To its credit, the game is consistent with not being able to walk on this type of grass, which is arguably more important. However, the way it is it feels more like the player character is refusing to walk there than not being able to do so, which not only decreases the feeling of agency, but also adds to the perceived incoherency. Despite being a consistent element of the game design, the representation inadvertently frames the action as player character disobedience rather than fulfilling the presumed intention of representing impassable terrain.

Thus, we come back to Tolkien's notion of suspension of disbelief: the fact that one does not consider Mario's lives as being part of the fiction means that we do believe in the game's secondary reality enough to not try explaining it in a way inconsistent with that world's established rules. A

player does not need to “choose to believe” in the game’s fiction, since they do not consider the lives system as being part of the fiction any more than the pages of a book are part of its fiction.

My solution to the question of coherency is fundamentally different: when a game has an internal logic, like Mario having three lives, losing lives by dying and acquiring them by achieving certain score goals, it is, by any standard notion of coherence, a coherent work. There is no need to consider the experience linearly as if it was film, since it is an entirely different medium. Further research into coherence in video games is needed but for the purposes of this paper, coherence shall be defined as *the logical consistency and intelligibility* of a work. The definition is at this point of research purposefully vague to allow for more refined definitions to arise as more research is done on the subject.

In text linguistics, coherence refers to the factors that make a text semantically meaningful, whereas cohesion describes the grammatical and lexical elements that link pieces of writing together. Analogously, cohesion in video games might be used in reference to the elements of game design that tie together the different elements of design. For example, the earlier discussion of Celeste's design contains many instances of cohesive elements in its design, where game mechanics are reflections of the protagonist's mental state and narrative turning points are made into game mechanics that reaffirm the sense of unity. A specific example would be the use of the feather as a gameplay mechanic after a character instructs (through a mini-game that has the player time button presses to keep a feather afloat) that imagining oneself as a feather in wind is a useful tool in coping with anxiety attacks. In the following gameplay segments, touching a feather will allow the player to fly for a short period of time. Every further instance of the feather mechanic can be considered an *anaphoric* reference to the mini-game or a conjunction-like structure: The feather mechanic can exist because Madeline has learned to cope with her anxiety. Conversely, a gameplay mechanic might *cataphorically* foreshadow a narrative element.

Ideally, the non-gameplay parts of a game design should be connected to the gameplay in a way that whole feels significant, i.e. cohesive. This seems like it should be a given, but is, in my experience, a surprisingly rare feature found only in the best of games. It is likely a result of the separation of narrative design and gameplay design, where several teams within the development

studio are essentially crafting different experiences that are only superficially connected. At best this kind of an approach can result in a good game as well as a good story delivered in one package. It should, then, come as no surprise that Celeste is a game envisioned by a single person. Celeste is brilliant not despite being conceived almost in its entirety by one mind, but precisely because of it, since this ensures that there is cohesive theme tying all elements of game design together.

4. Toward a Ludonarrative model

This section will attempt to build a ludonarrative model, based on the ideas of video game narratives and semiotics presented earlier in this thesis, with a special focus on *coherence*, *cohesion* and *ludonarrative resonance*. Of course, Aarseth's ludonarrative model (discussed next) needs to be credited as well; although my way of looking at video game narratives is quite different from his, the model serves as my primary inspiration.

4.1. Espen Aarseth's Ludonarrative Model

As Frasca (2003) notes, in the early days of studying video games, the discourse mainly revolved around the question of whether the medium can be examined with the tools of narratology familiar from literature and film studies or if they should be examined more like traditional games such as chess. Both of these approaches, though wildly different, share the same problem: they choose to concentrate only on specific parts of the whole and they use tools from related, but ultimately incompatible fields. Frasca (1999) acknowledges these problems and proposes a term specifically for the study of video games, which he calls ludology (latin *ludus* (“game”) and -logy).

A multitude of arguments have been made for and against the benefits of looking at video games as narratives. Before the founding of the Game Studies journal, video games had mostly been studied from the point of view of classical narratology, and the founding of the journal was in a way reactionary to this fact. As a result, the articles in the first issue were written to distance the discipline from narratology, which led to the understanding that the so-called "ludologists" are

against any kind of narratological inspection of video games, when the problem was the uncritical application of theory that was not meant for analysing video games (Frasca, 2003).

Based on classical 20th century narratology, Aarseth's (2012) *ludonarrative* model presents itself as a "solution to the conundrum that has haunted computer game studies from the start": It is the first, and so far only, serious attempt at categorizing the common denominators between games and stories. To him, video games are "story-game amalgams" and that "calling works like Max Payne or FallOut 3 [sic] games or stories is a metonymical shorthand usage of the terms that confuses and obscures the composite makeup of these creations." This emphasises the fact that the narrative and ludic elements of a game are often so deeply intertwined that it is not possible nor meaningful to try to draw a distinction between them, for example when level design is used to mediate dramatic elements. Yet this view is not fully reflected in the model, where ludicity and narrativity of a game are presented as the polar opposites. What is puzzling about the paper is the fact that Aarseth acknowledges this critical flaw in the model, yet makes no attempt at fixing it. He writes:

> [t]here is nothing necessarily narrative about topological variation in world structure, nor about the degree of flexibility of game objects. The removal of agency is not a measure of narrativity, even if it is compatible with story production. (Aarseth, 2012, p.4)

Yet at the same time his model presents them as such. If the topological structure of the game world is irrelevant to the end product and certain structures may merely "pose fewer challenges" to the design, why configure a model around them? The examination of the end-product should in this case be the focus of analysis, not the creation process. Rather, the non-linearity of the medium should be seen not only as a challenge or something that needs to be designed around, but an asset for new forms of storytelling and for allowing for more agency. For Aarseth, story is a problem to be solved – a means to an end rather than an intrinsically valuable part of the experience of play.

Storytelling and gameplay are seen as conflicting forces, meaning that the heavier focus there is on story, the more time the player spends not playing the game. However, there are ways of telling and supporting the story through the systems and mechanics of gameplay, instead of relying on the storytelling methods of previous media like cinema. These kinds of ludonarratives can be considered

to be a more natural way of storytelling for the medium – and possibly a more impactful one, too. This is incompatible with Aaseth's view on a supposed time-based 'balance' of play and story.

Ludonarrative, the modifier Aarseth uses to describe the model is more familiar from the term *ludonarrative dissonance* from Hocking (2007), which detailed the thematic discrepancies between the ludic and narrative elements of *Bioshock* (2007) and popularized the term to describe such issues. Ironically, therein lies the problem with Aarseth's model as well. It is not a model for describing the amalgams he recognises video games are, but rather a model describing the balance of *ludus* and narrative – two forces that should not exist independently in an ideal story game, where the narrative explains the mechanics and the mechanics tell the story.

Considering a modern story-based video game as being part story and part gameplay is indeed detrimental to understanding the term: it is simply a different use of the word game than what is meant when referring to 'pure' games like chess or Tetris. Video games do not only contain characters, a plot and other story elements alongside the management of resources, planning of strategy or any other part of the experience that could be considered the *game* in the traditional sense of the word, but are rather experienced holistically – not as part-film and part-game but as *video game*.

Despite perhaps showing more promise than substance, Aarseth's model is of course not without its merits. He recognises that the medium accounts for a wide range of narrative models of varying degree of narrativity. He distinguishes between events that are the core of the story, *kernels*, and those that do not substantially alter the story, *satellites*. This distinction comes from traditional narratology (Cohan & Shires, 1988), but is adapted to video game analysis, where these optional satellites provide the simplest form of player interaction with the structure of the plot.

Aarseth's model suggests four dimensions that can mediate narrative content: world, objects, agents and events. These represent the parallels to traditional narrative media, critically omitting gameplay as a mediator of narrative. As I have discussed earlier, the gameplay mechanics and systems can be used to deliver some of the most impactful narrative concepts in a game. This is an unsurprising omission, considering that Aarseth is known for arguing against all "narrativist"

approaches, which he defines as seeing narratives where none are present, but as has been demonstrated in this paper and elsewhere, developers do communicate stories through the ludic elements of a game. Considering systems as one category of narrative elements among others also breaks down the dichotomy of the ludic/narrative poles of his model: the more elaborate the systems are (that is, closer to the ludic pole) the more narrative potential they have (and thus should be positioned closer to the narrative pole), as the complex systems lend the player the possibility to have narratively meaningful experiences emerge through a creative, player-centric process.

The shortcomings of the model are easily demonstrated by using it to examine a game like *Celeste* (2018), where the overlap between the experiences of playing the game and the hardships faced by Madeline encourage and enforce the inhabitation of the protagonist's emotional space. From a purely world/object/agent/event -oriented perspective, Celeste is a game about a depressed and anxious girl who wants to climb a mountain for reasons that are not explicitly stated in the game. It is only through the story's synergy with the ludic elements of the game that a clear view of the narrative can be established. When Madeline learns to cope with her anxiety, her movement options are significantly improved, making it possible for the player to feel nearly weightless, or unburdened by anxiety, as it were. It is then reasonable to argue that the change in gameplay is as much a narrative device as it is a new gameplay mechanic – a feature of narrative design that is unaccounted for in Aarseth's model.

Aarseth's 'balancing' model is perhaps not an unreasonable approach to narrative analysis considering that it is now 7 years old in the rapidly changing field of video game design. Considering that most games at that point, and perhaps even now, attempt to balance story and gameplay, it is not difficult to see why narrative in games is considered by some to be a hindrance rather than an asset, as spending time in cutscenes is time spent away from the game proper, which might be perceived as the more interesting part of the experience by these people. Additionally, games near the narrative poles of Aarseth's model sometimes suffer from what is known as *cinema envy*, (Zimmerman, 2002) which stems from the desire to be recognized as a medium like literature and film, but only results in mere imitation. As a result, they tell stories like they have been told in literature and film without considering the possibilities of the new medium, thus accomplishing the opposite of being recognised as a serious artistic medium. The stories can still be great – as great as

literature and film, given the right writer – but without a change in the philosophy behind storytelling they cannot ascend any further. These games are analogous to the early movies that mimicked theatre and were yet to utilise the camera as a creative tool, instead filming static stages.

As an example of such a game, *Spider-Man 2* (2004), a tie-in video game for the Sam Raimi movie of the same name, has trouble making the narrative feel connected to the game. Its cutscenes loosely follow the plot of the movie, but the gameplay has little to do with it, as it has the player prevent acts of criminality to collect enough points to trigger the next cutscene. It is almost sad, then, that the gameplay mechanics are thoroughly enjoyable and the incoherent story exists only to deter from the experience. In the movie, for example, Peter Parker finds it difficult to balance his two lives. The game implements this concept as a timer-based mission that has the player travel to a location that appears on the map, which then triggers a cutscene, after which the player is free to continue playing normally – not reaching the location results in game over. This is a very literal instance of the cinematic urge for storytelling disturbing the flow of the game and its design for no other purpose than to tie the game to the movie's narrative.

An alternative way to approach the problem, if one is not tied to a linear narrative, would be to think how the act of balancing two alter egos could be implemented as a gameplay mechanic. This approach would likely take the form of having the player choose through their actions whether to prioritise Peter Parker's personal life or help the people of New York as Spider-Man and have the player realise they are late, rather than Peter's voice-over declaring the matter is so.

Conversely, many games take a categorically minimalist stance to the story, like *Dark Souls* (2011) or *DOOM* (2016). In the case of games like *Dark Souls* and *DOOM*, franchises that have no history with elaborate stories, the response to a tighter focus on the essentials has been largely positive. These games rely mostly on non-intrusive, organic narrative approaches, namely environmental storytelling, with the gameplay scenarios taking some of the functions of the narrative.

To clarify, the problem is not the mixed media approach of embedding a piece of another media into a game experience, but rather the misuse of this possibility to create experiences that lack the nuances of good storytelling within an interactive experience, creating the sense of dichotomy that

is perhaps directly responsible for the general anxiety over mixed media usage in some gamers, as well as Aarseth's understanding of the balance of game and story.

4.2. The Active Ludonarrative Model

This section will detail a proposal for a new framework for examining and understanding narratives in video games. As a basis for the new ludonarrative framework, the expressiveness of video games is brought to the front, with a focus on coherence, cohesion, ludonarrative resonance and semiotics of interaction. The clearest underlying difference between my model and Aarseth's is the view of narrative as either a passive or active structure: the ludonarrative model presents narrative as a structure separate from the 'game' part of a video game, whereas the goal of this revised model is to recontextulise the notion of 'narrative' as an experiential layer that is comparable to the traditional notion of narrative, but brought to larger relevance for the interactive medium by including the interaction itself as a possible part of the narrative, now dubbed ludonarrative to emphasise the distinction. This, as will shortly be demonstrated, does not replace the notion of narrative, but rather complements it and harmonises with it.

The 'active' notion of my model is comparable to Barthes' notion of the 'ideal text' that blurs the distinction between the 'readerly' and the 'writerly' by imagining a text without the constraints of representation. Although video games are not entirely free of these constraints, the greater variety of representational means, i.e., the simulatory aspect of the medium, yields the possibility for forms of expressiveness that are not constrained by an as strictly exact representation as words on paper are. (Barthes, 1974, pp. 5-6)

The semiotics of video games will first be roughly categorised as follows to distil a set of terms to describe different ways of communicating narrative content in video games. This is based on Seraphine's (2014) video game semiotics: Actum-based narratives, i.e. those that emerge as a direct result of player input, have the player in control of their experience. This leads to an innate feeling of agency, as the player can exert their imagination over a game's possibility space to explore its limits. When a narrative is classified as actum-based, it does not imply the absence of tactums

and/or factums, but rather that the player is the one facilitating the action. Actums and factums are necessary for any kind of meaningful experience to take place, as actums will have no meaning in a vacuum. Tactum-based interactions are those facilitated by game objects and that have the potential to affect the game state by affecting objects controlled by the player. Factums, then, are the last type of interaction: those that are between game objects and do not directly affect the objects controlled by the player. These are grouped together in the following table because of their origin, which is, in opposition to the player's agency, the authorial intent behind a game design. The embedded column, then, represents the different mixed media approaches to designing an experience.

Table 1. Categorisation of semiotic modes for analytical purposes.

	Synchronic	Diachronic
Actums	The Sims (2000); Non-reversible death and romancing in Fire Emblem: Seisen no Keifu (1996)	The dynamically combining ending of Oxenfree (2016)
Tactums/Factums	Scripted storytelling in Half-Life (1998); Ellie rebelling in *The Last of Us* (2016)	—
Embedded	Radio communication in *Lylat Wars* (1997); Books in *Skyrim* (2011); Cutscenes in *Prince of Persia* (1989)	The opening text sequence in *The Legend of Zelda* (1986); Flashbacks in *Zelda: Breath of the Wild* (2017)

From Table 1, it can be inferred that actum-based narrative content shares similarities with the notion of emergence by the virtue of being a direct result of player agency and that tactum/factum-based interactions are more directly authored in nature. However, the mere existence of actums does not necessitate a narrative layer, i.e., all player action is not necessarily of narrative significance, nor do tactums and factums equal to authored storytelling, as tactums and factums are also the basis for the systems and mechanics (which enable emergence) of the game, that are then interacted with using actums.

Static elements of game design – such as those listed in the “embedded” row of the table above – could be interpreted as factums as well, although that would needlessly obscure the fact that they

are based on another type of signification altogether, such as that of film or literature. The embedded elements are used as a resource for narrative interpretation and enrichment. This distinction allows for the examination of narrative content through a lens that emphasises the unique qualities of video games. This is not done to make a value judgement on the use of embedded media in video games, but rather to help understand the potential of the intrinsic methods of semiosis in video games. Comparing to Aarseth's model, the model acknowledges the narrative meaningfulness of interaction, while borrowing freely his understanding of the malleability of narrative structure in video games.

Poole (2013) uses the terms synchronic and diachronic to refer to the "present" and "back" stories, respectively, found in video games as well as in traditional media. Different game designs allow for the focus to be on either the synchronic or the diachronic narrative, as well as a balanced mixed of both. The reason they are so prominently featured in the model is because of the cognitive difference caused by the narrative temporality: the same action happening in the fictive present is more dramatic and enthralling than if it was set in the fictive past, even if the representation is identical. For an analysis of ludonarratives to be comprehensive, the relations of these different layers of narrative need to be explicated and contrasted with the game's emergent aspects.

I classify actum-based significations as *emergent*, whereas tactum- and factum based significations are classified as *authored*, since they are not prompted directly by the player. This means that the definition of emergent is perhaps more inclusive than previous ones, but also that there is a more concrete basis for the definition in semiotics. Emergence thus becomes an aspect of video games that has qualities of both *ludus* and narratives, but which also differs from both. It is similar to narratives in that the resulting gameplay engages the player's imagination to experience it a narrative-like way, but it is different in that it is not a preconceived, rigid structure that is experienced non-interactively. It is similar to *ludus* (and perhaps more accurately, *paidia*) in that participating involves exploring the possibility space, but different in that the representation of the set pieces is an important part of the meaning-making process.

Embedded is in this context used to refer to a piece of another media embedded in the game experience e.g. a cutscene or a text passage. QTEs are in this framework considered a type of

embedded narrative comparable to pressing a button to display the next lines of text. The underlying concept of embeddedness is that it does not rely on intrinsic semiotics of video games, i.e. on actums, tactums and factums, but rather on the semiosis of another type of media. If one were to assess the quality of these narratives, it should become obvious that authored narratives, whether they are synchronic or diachronic and embedded or not, rely mostly on the quality of script-writing and other non-game related factors, whereas emergent ones rely on the ability to use ludophrases in a way that is perceived to be meaningful.

For a new ludonarrative model, it is critical to acknowledge and emphasise the fact that 'game' and 'story' are not in opposition to each other, but can work together in crafting the desired experience for the player. Equally important is the inclusion of a systemic component as a mediator of narrative. To start with, the ludonarrative model will omit games that have no story (chess, *Tetris*) or have story elements that have no relevance to the game proper (*DotA 2*, *Arkanoid*) from analysis. The fiction in games like these does not detract anything from the game, as it is entirely optional and not required for enjoyment. In these cases, the fiction is detached from the game proper, which means that there is almost no overlap between the game and the fiction. Because of this, the fiction adds little to the game, but also does no harm to it. Any possible authored narrative is thus also detached from the experience, i.e., narrative of playing the game and it is difficult to perceive a coherent ludonarrative in these games.

The rest, which we may call story-games, can be categorised using two criteria: ludus and narrative. However, unlike Aarseth's (2012) model, they are not represented as opposites on a two dimensional plane, but rather as factors that combine to potentially create something greater than a balanced mix:

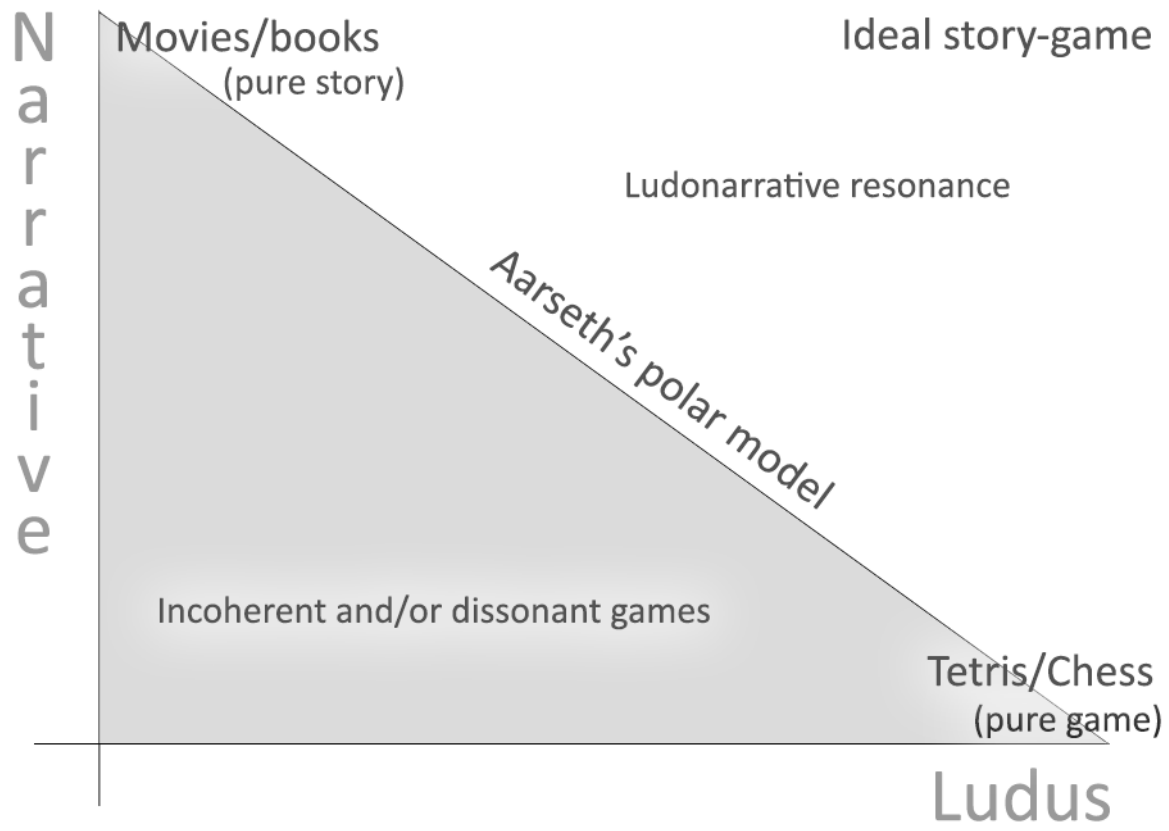

Figure 3. A visual representation of the active ludonarrative model.

Figure 3 is an extension of Aaseth's ludonarrative model, which is based on the balance of ludic and narrative elements and which describes games as if they all existed on that polar line. This old model is thus represented with a one-dimensional line, although Aarseth describes various 'dimensions' that that constitute the balance. Games on this line are games and stories, not so much game-story amalgams, and represent a balance between ludic elements and (mostly) embedded story elements such as text and cutscenes. That is, the more 'game' a video game is, the less 'story' it is, essentially representing the common and functional 'mixed media' approach to narrative design.

However, Aarseth's model can be greatly expanded upon by seeing these bickering poles of ludus and narrative rather as combinatory qualities, which is made possible by admitting gameplay as a narrative-building element, both in the sense that systems can tell stories, as well as the experiential aspect of playing a game being narratively meaningful. In practice, this means that games do not

need to balance the time spent on storytelling and gameplay (or narrative and game), but rather can freely tell their stories and allow the player to experience theirs while being highly playful, lending for a more organic-feeling, co-authored narrative design that epitomises the phrase "best of both worlds".

This is denoted with the space above the line that represents Aarseth's model. Here, the ludic and narrative elements complement each other and the resulting work ascends closer to what my model assumes is the ideal story-game, which is as narratively meaningful as literature and as gamey as traditional games. The vast majority of games, I would argue, are positioned somewhere along the Aarseth-line – either above or below it – although objectively placing a work on the graph is impossible due to its nature as a tool for conceptualising the qualitative aspects of a work, instead of a quantitative tool for measuring the storytelling or gameplay ambitions of a work.

From a research-perspective, the games that do pass the line of ludonarrative resonance are perhaps the most interesting, as they are not like the games we already know nor like the narratives we know – they are the 'new' phenomenon. So far, independent video game developers have been the most interested in pursuing this merger between storytelling and game design, with titles like Oxenfree (2016) and Celeste (2018) getting quite close to that ideal, despite both approaching from very different perspectives.

5. A Case Study: *The Legend of Zelda: Breath of the Wild*

This section will demonstrate how the ludonarrative model presented in the preceding section can be applied to game criticism to provide new perspectives on how games tell their stories and enable users to experience their own. The purpose is also to use a specific example as a tool for understanding one possible approach to narrative design in open world games.

For examination, I have chosen *The Legend of Zelda: Breath of the Wild* (2017), with some comparisons drawn to *Horizon Zero Dawn*, (2017) henceforth abbreviated *BotW* and *HZD*, respectively. Both games are post-post-apocalyptic, AAA, open-world RPGs released in March 2017 (in Europe), featuring gone-rogue robots created by a civilisation in a bygone era and clueless

protagonists trying to figure out their past. Both Link (*BotW*) and Aloy (*HZD*) utilise technology from past civilisations alongside simple weapons like bows. These comparisons are not only drawn because of the similarities, but because of some underlying game design philosophies that greatly alter the way both games are experienced in a narrative sense.

One of the highlights of *Horizon Zero Dawn* is its elaborate story (c.f. (Murnane, 2017) and while *BotW* received nearly universal praise upon release, the story was generally not considered one of its strengths (c.f. Welsh, 2017). These arguments are likely referring to a synchronic narrative and the lack of authored events. The game is very clear from the beginning about what needs to be done to complete the game and will present no additional obstacles to completion as plot-twists.

5.1. Introduction to *Breath of the Wild* and its story and characters

The Legend of Zelda: Breath of the Wild is the 19th entry in Nintendo's long-running action-adventure video game series *The Legend of Zelda*. Drawing inspiration from the openness of the first game (*The Legend of Zelda*, 1986), *BotW* builds on current game design trends to provide the least linear *Zelda* game to date.

The game begins with Link, suffering from Kafkaesque amnesia, waking up in a chamber. In it, the player finds a high-tech tablet device called the Sheikah Slate. In the so-called tutorial area of the map, the player is introduced to Link's skills and the basics of the story: Link was Princess Zelda's personal body guard who fell in battle a 100 years ago and was taken to the Shrine of Resurrection where the game begins.

After the game's tutorial, the player is free to explore the entire game world, including confronting the game's antagonist and ‘final boss’, Calamity Ganon. The game focuses heavily on exploration, and the player is rewarded for it either through enhancements to the player character's capabilities or story fragments.

However, *BotW*, despite an incredibly favourable reception, was considered by some to be a disappointment due to the smaller focus on story than what the other recent entries in the series have had. The game's embedded narrative is largely a diachronic one and the synchronic narrative emerges in no part from interaction. This means that using a very strict definition of "story" (synchronic and authored) there is almost none present and most of it is optional.

As a Japanese-developed game, *BotW* draws inspiration from the culture of Japan, from the prehistoric *Jōmon* pottery (cf. Kleinman, 2017) to Studio Ghibli's animated films like *Princess Mononoke* (Miyazaki, 1997). Additionally, the influence of Shintoist beliefs can be seen in several aspects of the game's design. The Koroks, for example, are a visual representation of the concept of *yaoyorozu no kami* – the multitude of untranslatable essences or spirits of nature that can be found in a wide variety of natural objects like the Koroks are in *BotW* and their protector Kami, the Deku Tree. Western influences are apparent as well, with the game's ideals of romanticism (seeking of an emotional response, appreciation of nature, and individualism) reflected in its NTSC-regions' (Japan and North America) cover art, which is a pastiche of Caspar David Friedrich's *Der Wanderer über dem Nebelmeer* (1818).

5.1.1. The Authored Narratives

BotW relies heavily on the use of embedded, diachronic narratives as a storytelling method. Although not a rare occurrence in narrative design in games, this method of storytelling seems to be a solution to a problem that arises from a truly open game design: if, at any moment, the player can go anywhere, it is difficult to tell a synchronic story cohesively. This does not imply a total lack of synchronic story, but rather a shift in focus. The result is a game that, through a lens of a traditional understanding of narrative, can be seen as a somewhat disappointing entry in *The Legend of Zelda* -series. This chapter will discuss the parts of the game that are perhaps more readily accepted as being part of the 'real' story of the game, as opposed to the player experience, to understand the notion of *BotW* being a disappointing entry in Nintendo's most narratively-driven video game series.

If the player is uninterested in the events leading to the game world's current state, the flashback memories can be ignored altogether by not seeking them. The game world is designed to evoke a sense of wonder in the player, and the natural intrigue to discover what has happened to it is a major force driving the narrative discovery forward. This intrigue is largely accomplished through a subversion of expectations, as the anachronistic elements do not seem to belong in the Tolkien-esque fantasy setting. Additionally, the game has a secondary backstory taking place 10 000 years before the synchronic events, relied through certain NPCs.

The story that happens first chronologically is that of the Sheikah tribe. The story exists to explain some of the basic concepts of the Zelda franchise such as the concept of a cyclical return of the evil Calamity Ganon and the princess and the hero who together seal the evil away. It also tells of a more advanced civilisation than the ones that came after it, who, in preparation for the next attack of Calamity Ganon, created four colossal, animal-like machines known as the Divine Beasts as well as the large, autonomous, spider-like Guardians. 10 000 years ago, these machines were used to successfully prevent Ganon's return.

In the synchronic narrative, the player can learn of this story by speaking to either Impa, the elder of Kakariko Village, or Kass, a traveling bard found at various stables – two characters that one might expect to be knowledgeable about old stories. The visual design of the cutscenes that play as they tell their stories shares the same tapestry aesthetic that emphasises the fact that these stories are depicting the same events. As they are relied through dialogue (voice-acted in Impa's case, text in poetic form for Kass), they are expository in nature. While the story in isolation might be unremarkable at best, it is important for the overarching narrative, as it forms the basis for the events that eventually lead to the situation at the beginning of the game.

Figure 4. The memory-loss trope enables easy exposition.

If the player chooses to follow the path that the NPCs suggest him to take, they are introduced to the mechanic of discovering the story that happened 100 years ago: Link has 12 pictures taken one hundred years ago in various locations around the game world and it is hinted that revisiting these places will help Link regain his memories. Finding these places will trigger short cutscenes, which together form a considerable part of the game's narrative.

This diachronic narrative follows Link and Zelda around Hyrule, and focuses on Zelda's character. It is a story about her anxiety about people's expectations towards her and explores the concept of agency as it pertains to these expectations. She wants to research and understand Sheikah technology, but she is expected to figure out her ancestral magic on her own. Reading her journal (which can be found in her study in Hyrule Castle), it is revealed that her mother died before she trained her daughter in the ancestral magic. Thus, Zelda lacks the means to do what is expected of her, which causes her even greater frustration. This is reflected in Zelda's treatment of Link, whom she sees as a reminder of her failures.

The narrative arc is designed with the fact that it is likely to be experienced out of order in mind. Story fragments are revealed one at a time, which awakens a sense of curiosity when the player tries to figure out the story arc without sufficient information.

There is a very specific focus, which is the relationship between Link and Zelda and witnessing the different sides of Zelda paints a fuller picture of her, as well as hinting at the intended order of the memories. Scientifically minded, she would prefer to spend her time researching the lost technology of the Sheikah civilisation. This can be seen as being reactionary to the fact that her mother passed away before training her in the ancestral magic needed to keep the Calamity away: she is looking for an alternative because she does not believe in her ability to figure it out alone. Her father insists that prayer is the way and does not tolerate her academic pursuits.

This storytelling method works only because Link has lost his memory in the resurrection chamber. However, it is not the only benefit the amnesia-trope provides for the narrative: since Link has lost his memory, he is as clueless about the world as the player is, creating a connection between the player and Link, compounded by the fact that Link is a silent protagonist. (All of his supposed lines are implied in other characters' speech, streamlining the dialogue and leaving room for projecting an exact framing of the question to the player.)

The embedded narratives are contextualised well, which means that their inclusion does not create any unexpected lack of cohesion. The story of 10 000 years ago is told linearly, but the player has several opportunities at hearing it from different people in the game, told slightly differently. The story of 100 years ago, while a linear story as well, is told in an arbitrary order depending on which memory locations the player finds. This creates a large hypothetical number of different narrations of the same story. It causes confusion and intrigue about how the events are connected and what the people are talking about.

In addition to the relatively few cutscenes that trigger by talking to certain NPCs or entering certain locations, *BotW* has its form of the 'discoverable artefact' system, or what Bogost (2017) call a story-fragment collector. Mechanically, they are the same as a cutscene that triggers when talking to a character: Pressing the A-button near a certain game object will trigger the playback of an embedded video file. It is differentiated solely through representation, as well as the fact that the object disappears once the scene has been watched.

Environmental storytelling manifests itself in many ways in *BotW*, and the aspects that can be clearly categorised under 'authored' are discussed here, while the rest will be discussed in the next section. The main piece of information communicated through environmental storytelling is the history of Hyrule as a lived-in setting. The apocalyptic events that led to the beginning of the game are reflected in the amount of abandoned and ruined settlements and outposts. The number of active settlements is relatively low, echoing the relative recentness of the events. The number of decaying Guardians speaks to the resistance, while the fact that many still roam the lands speak to their eventual victory against the peoples of Hyrule. Especially locations like the fields in front of Fort Hateno speak to the battles lost through innumerable Guardian remains, some of them seemingly destroyed in midst of climbing up the walls of the fort.

5.1.2. Emergence as a design principle

> *"The spirit, the state of mind of a kid when he enters a cave alone must be realized in the game […] Going in, he must feel the cold air around him. He must discover a branch off to one side and decide whether to explore it or not. Sometimes he loses his way."*
>
> *(Shigeru Miyamoto, quoted in* Sheff, 1999, p. 52)

BotW was built on the premises of agency, as well as emergency. Often, the player is encouraged to solve problems in a certain way: for example, the player might find a camp of enemies under a ledge, with explosives that can be detonated by pushing a conveniently placed boulder on them, eliminating the entire camp without using essential resources. This is done very explicitly in the areas near the beginning of the game to have the player survey their surroundings before tackling challenges and to encourage an inquisitive playstyle. *Kotaku*'s review (Schreier, 2017) described *Breath of the Wild* as a "game that says 'yes' to anything you ask of it" and emphasised anecdotes of the wide emergent potential of the game. Like Schreier, I too have my personal favourite moments playing *BotW* – all of them anecdotes, not pre-scripted story beats.

While the two diachronic, embedded narratives are interesting in their own right, the perhaps more interesting narratives of *BotW* are born out of player interaction, since its design is an instance of an open-world game fully embracing the concept of a sandbox game. The following section is dedicated to the different ways *Breath of the Wild* encourages experimentation and exploration, which, in this game, are the two elements that allow for emergent experiences to arise.

BotW is a very different experience to all who play it in a way that linear games like *God of War* (2018) are not. Although this could be easily attributed as being a feature of open-world game design, most open-world games so far do not make possible such a diverse range of creative approaches afforded by *BotW*'s physics-based puzzle and combat design, as well as the versatile chemistry engine. The result is a very personal experience co-authored by the player. Although it was the developer who very deliberately added these opportunities in the game, the player is the one realising this intention, seemingly of their own free will.

The three main ways gameplay mechanics actualise narrative implications in *BotW* are emergence in exploration, combat scenarios, and puzzle-solving. They work separately to create narratively meaningful experiences, but can also combine to create larger, over-arching narratives. Importantly, there is no distinction mechanically between different scenarios, as Link's capabilities and controls stay consistent to aid in any of these situations, thus blurring a clear distinction between them.

Emergence in exploration is afforded a new layer by a less direct approach to guiding the player to discoveries. As an example, in *HZD*, when the player is guided to a side-quest by an NPC, it is usually a direct inquiry for assistance like "please bring me X" or "please kill Y" after which a marker appears on the player's map in the location, as well as a navigator-like arrow showing a suggested route to the location. Conversely, in *BotW* NPCs give instructions in a way that allows the player to navigate without a map, as well as leaving the exact route up to the player, as traversal is not restricted by natural obstacles such as rivers, canyons or mountains due to Link's versatile movement options. The lack of map markers extends to other aspects of the game as well, such as the Shrines, most of which can only be found by paying attention to surroundings. While the difference is subtle, the effect on the player is quite different, as one involves the player in a constantly active decision-making process, while the other has a tendency to passivise; this can also been seen *HZD*'s attempt

to alleviate boredom by having a character call in during longer stretches of traversal within the main storyline.

The four Shrines of the tutorial area act as individual tutorials to Link's four abilities, which are analogous to the concept of items that granted similar capabilities in previous entries in the series. The difference is that these 'items' are given to the player at the start of the journey, not throughout it. This means that the rest of the game world can be designed with these abilities in mind, including the rest of the game's 120 Shrines, ensuring there are no barriers to player progression besides player's skill. Whereas the item system was previously used to restrict the player's access to areas of the game they are not supposed to go (for example *Ocarina of Time* (1998) requires that the player acquire the Hookshot to access the elevated entry to the Forest Temple), this time it is used to enable the exploration of the whole map by making the items universally useful within the game's physics and chemistry engines and granting them during the game's opening.

Exploration is incentivised through extrinsic means with Spirit Orbs associated with completing a Shrine, as well as Korok Seeds given by the hiding Korok-creatures. Seeing something curious and investigating it will usually yield some type of a reward. Shrines are designed with a distinctive orange light pattern that makes them easy to spot from afar, especially at night. A vantage point will often reveal the location of at least one shrine early in the game. Shrines and Korok Seeds are numerous: 120 and 900, respectively, meaning that curiosity rarely goes unrewarded no matter which path the player traverses.

Although moments of discovery are authored in the sense that the developers both put something to be discovered and the hints that guide the player, the fact that there are no map markers explicitly leading the player to a discovery lend the exploration a very emergent feeling fuelled by the player’s own curiosity about, for example, a peculiar circle of lily pads or a lone pebble on top of a hill. The subtlety of how these discoverables are communicated to the player means that any given discovery is easy to miss, yet the sheer number of them means that it is almost inevitable that some will pique the player’s interest.

Despite the vast amount of optional content, *BotW* does not suffer from incoherency or ludonarrative dissonance resulting from player's actions being misaligned with character goals, as most side-activities are directly relevant to gathering the necessary strength and resources to tackle the game's primary goal.

The world design is based on a principle dubbed by the developers as "the triangle rule" (Walker, 2017). Specifically, it refers to the use of the triangle shape in designing the game world and it serves two purposes: triangles obscure from view and hinder traversal. This combination, the lack of information and the challenge, creates a natural curiosity about what is on the other side, which the developers use to surprise and reward the player. Largest triangles, such as Death Mountain or Hyrule Castle serve as landmarks, while the smallest ones are there to "change whatever buttons the player is pressing or for more concrete play" (Walker, 2017). Additionally, structures of different sizes and importance are scattered strategically to encourage different players to take different routes based on their temperament and playstyle as well as encouraging getting distracted.

This leads to an active playstyle, with constant decision-making that rewards paying attention to surroundings. It is a clear break from previous entries in the series, as well as the vast majority of video games in general: whereas usually the player is tasked with figuring out the solutions to the puzzles created by a developer, *BotW* turns the tables on the idea by tasking the player with deciding what they want to do and how to do it. Instead of an author-centric story, it is a player-centric one. Seeing the Divine Beasts, for example, first from afar, not knowing what they are, and then understanding their story to finally entering one is an exciting sensation that is intrinsic to video games.

Emergent qualities can be found in the tactums of the game as well, as NPCs can be found travelling around Hyrule independently, sometimes getting attacked by monsters, sometimes simply looking to sell their wares in the next settlement. Sometimes the player will witness a group of monsters (rather comically) hunting game, or dancing around a campfire. The behavioural patterns of these NPCs are seemingly unpredictable selling an illusion of ‘real’ characters in fantastical world.

Cooking and potion-crafting is another aspect of the game that has been reimagined to fit the player-centric approach to game design and allow for more emergence. Instead of picking what the player wants to craft from a list and confirming they possess the needed resources (like in *HZD* and most other games with crafting mechanics) the player instead begins with the ingredients, freely picking up to five, and throwing them into a pot, only after which the game decides which food item matches the used ingredients. Using food items will always result in food of varying quality, whereas using monster parts with food items results in what the game calls “dubious food”. Monster parts can, however, be used to craft various potions and elixirs.

Together, these aspects of the game design work as a strong nexus of systems that enable (and encourage) the emergence of complex and unique ludonarratives and allows for the player to partake in this creative process through a wide variety of ludophrases that are controlled using a surprisingly expressive range of actum-tactum-factum relationships, such as the chemistry and physics engines and the universally usable ‘rune’ abilities.

5.2. The Isolated Plateau

This section explores the introduction of *Breath of the Wild*, which manifests itself physically in the form of the elevated *Great Plateau* in the middle of the game world where Link awakens to Zelda's telepathic message. The goal of this section is to discover how the game communicates its themes and prepares the player for the rest of the game. The plateau, which takes approximately 1–4 hours to complete, is the only hard restriction to world navigation the game institutes. Its design has been likened to that of the larger game world:

> *Instead of a conventional tutorial mission, this small region is an intricately designed miniature version of the entire map. It has several enemy encampments to teach you about combat, different climates that introduce you to stat-boosting food and clothing, and four shrines that mirror the four divine beast dungeons, which provide the main body of the challenge later on* (Gray, 2017).

To understand how the Plateau works as a tutorial we will return to the concept of agency. Whereas the "conventional tutorial mission" strips away almost all control from the player and requires them to complete a certain set of orientational tasks, *BotW* drops the player in a relatively large, explorable area that invites experimentation and creative puzzle-solving. Completing the Plateau area requires the player to experiment and explore, which are the two cornerstones of the game design. The developers' talk at Game Developer's Conference in 2017 suggest that the game was envisioned with creative thinking as an over-arching design philosophy:

> It was our aim to deliver a more active and open-ended experience and we hope that players will enjoy coming up with their own unique solutions to the game's puzzles and challenges (GDC, 2017, s. 50:26).

Thus, the goal of the plateau is to orient the player towards this active playstyle the developers aimed for. Although some game mechanics are explained through HUD elements, many are also left to be discovered later in the game, reinforcing the focus of the tutorial area as a playground for creative thinking. For example, reaching two of the shrines requires improvising a solution for traversing a lethally cold mountain area. There are at least three solutions to this problem: acquiring warmer clothing, carrying a torch, or cooking food that increases Link's resistance to cold. The first two are very intuitive, and the third one is hinted at through flavour text that accompanies ingredients that have cold-resistant properties. Additionally, it is possible to compensate for the cold-induced damage by eating health-replenishing food items instead.

These are all examples of complex ludophrases, i.e., combinations of interactions between game objects and mechanics that are perceived as meaningful, and the gameplay of *BotW* is largely built on encouraging the player to experiment with different combinations of mechanics and gameplay objects to let this type of meaningfulness to emerge from player interaction. Being largely based on actums, performing the ludophrases is a form of agency – the sense that the player overcomes the game design, instead of succumbing to a forced solution. This is largely due to the fact that the game is consistent with its physics and "chemistry" engines. The fact that the world responds to player actions in predictable ways makes it possible to envision new solutions to problems – problems that may also be player-concocted. The developer calls this approach *multiplicative gameplay*, (GDC,

2017, 15:27) referring to the system's ability to provide near-infinite gameplay without computer-generated pseudo-random content familiar from the *Rogue*-like genre.

Exploration in *BotW* is encouraged through world design and by rewarding the player for paying attention to their surroundings. Unlike most similar games, *Breath of the Wild*'s map is not automatically filled with markers, but rather the player will need to find a vantage point and decide for themselves which goals to pursue, possibly making marking on a map manually. This leads to a constant loop of exploration and discovery. Discovery is incentivised through gameplay systems: breakable weapons mean that the player is constantly looking for new weapons. The Great Plateau is a perhaps somewhat harsh introduction to this, with many a player's first weapon likely being a tree branch that breaks after just a couple of hits. The Plateau emphasises thus the survival aspects of the game, i.e., the hunt for resources that will make it possible to progress the game. Although this is less emphasised once the player leaves the Plateau, it both gives the beginning of the game a sense of purpose, as well as teaches the player the essential skills of gathering resources and tackling problem situations.

5.3 Coherence and Cohesion

This section examines coherence in *Breath of the Wild* to understand how it creates a Tolkien-like world that feels 'real' within the fiction through the use of various cohesive elements.

5.3.1. Elements of a Coherent Game World

This section attempts to explicate how different elements of *BotW*'s design are connected to create a game that feels coherent. This quote from the development team's talk at Game Developer Conference illuminates how the game's coherency stems from a desire to create an infinite number of gameplay scenarios:

> Earlier, Mr. Fujibayashi posed the question: "how can we create a game that uses multiplication to expand gameplay?" It turns out our answer was to build connections between everything in the world. […] And these connections don't simply occur by accident. Instead, they are designed to have an overall consistency and to feel instinctive.
>
> (GDC, 2017, 45:41)

Although perhaps unintentionally, the way the development team approached creating a larger game added a new layer to the game's world building: coherency. Applying consistent rules to how all game objects behave satisfies the need for "multiplicative gameplay", but also has the added benefit of making the game world feel more believable through the inherent coherency that comes with such a high degree of consistency in how it behaves.

This is accomplished using a 'chemistry' engine in addition to the now ubiquitous physics engine. As detailed in (GDC, 2017) this works by applying a "material" or "element" quality to all game objects. The elements of this "rule-based state calculator" (39:27) are electricity, fire, ice, water and wind, whereas "materials" encompass all solid bodies such as the player character, enemies, grass and weapons. Three rules are then applied to complete the model. The first rule states that elements can change the state of materials. These work in a logical manner: wood catches fire and metal conducts electricity but not vice versa. The second rule states that elements can change each other's states. For example, rain will extinguish fire and fire will melt ice. The third rule is simply that materials cannot influence each other's states. However, a burning material, for example, is considered to carry the fire element and that element will influence other materials. The art style of the game is designed with the specific goal of being suggestive of these possibilities while maintaining a layer of abstraction that allows for a timber wood log to turn into a neat bundle of firewood with a single swing of an axe (GDC, 2017, 1:03:00–1:25:16).

This system, although first and foremost a gameplay mechanic, has some significant narrative implications. First of all, it is a meaningful form of *narrative agency*: Its inclusion means that players have the ability to imagine a wide variety of approaches to any given situation, which is an exciting sensation. How an enemy encounter unfolds is not just about how well the player performs a more-

or-less predetermined set of actions such as combos and dodges, but also about their creativity in how they approach a given situation.

The ‘memory’ flashback cutscenes are not entirely distanced from gameplay either, as even they are used to communicate game mechanics. For example, Zelda, who is a scientifically oriented person, tries to have Link eat a frog because it has been discovered to "augment certain abilities" (consuming a properly cooked one in-game increases Link's speed). Although these cutscenes could be analysed in isolation using the tools of film studies, for game narrative analysis it makes more sense to look at them within the context of the synchronic narrative. These types of elements increase the coherency of the whole work, as the cutscenes are more clearly tied to the ludic elements beyond just theming – the game mechanics are elevated from being thinly disguised game mechanics to being a consistent part of the fiction as well.

Additionally the narrative design juxtaposes the game design to explore different sides of the concept of agency for added coherency. Zelda’s struggle to gain agency in her own life is contrasted by the game’s absolute commitment to the player’s freedom of choice, which permeates all aspects of the game from narrative progression (or discovery) to combat and exploration. Conversely, Zelda’s life is characterised by an innate technological interest, but societal and hereditary expectations restrict her ability to act on these interests, perhaps as a subtle critique about the illusionary nature of the freedom many other games attempt to sell.

The activities the player can perform in the game are all designed to accommodate the narrative structure in the sense that the narrative only requires Link to eventually defeat Ganon and all activities reward the player with something that will, at least in small part, help accomplish this goal. As Zelda has been fighting Ganon for 100 years already, the player knows that the important thing is not to hurry, but to gather enough strength and resources to defeat Ganon. In practice, this means that the narrative experience is not hindered by the conflict of an implied urgency and the realised player action: Completing the divine beasts directly contributes to the final showdown, completing shrine trials strengthens Link, Korok seeds make it possible to carry more weaponry, exploration always yields at least items such as armour that helps you get to your goal, essentially solving the problem of ludonarrative dissonance for this game design. Nothing you can do in the game feels

irrelevant to your goal, which is important for the believability of the fiction. Using Tolkien's (2008/1947) definition of suspension of disbelief, no cognitive effort needs to be made to reconcile deviating from a suggested path. Usually the player knows that if there is no running on-screen timer, the urgency implied by the narrative is not 'real', that is, part of the game proper, reinforcing the notion These types of experiences have likely contributed to notions such as Aarseth's balancing of narrative and ludic aspects of a video game.

In addition to the Divine Beasts and Shrines, *Breath of the Wild* contains some side-activities that can be characterised as "mini-games". These are fundamentally different from mini-games like Red Dead Redemption's Five Finger Filet – which is strictly divorced from the game design, but a narratively sensible activity – because *BotW*'s side activities manifest as novel uses of established gameplay mechanics. As an example, Boom Bam Golf, located on the bottom of a canyon (one which could be assumed to be a bottomless pit in almost any other game), has the player use Link's runes to essentially play a hole of golf with a human-sized boulder and a sledgehammer. This is a characteristically silly meta-game, but one that fits the fiction, thanks to the game's cartoony art direction, as well as the fact that it is run by a member of the boulder-like Goron race. Whereas *BotW*'s meta-games add cohesion and depth to character and world design through the usage of game mechanics in its side activities.

However, *BotW*'s coherence only extends to those aspects of the game design that have been deemed beneficial to the original ambition of multiplicative gameplay: Regarding the chemistry engine, for example, wooden houses have not been given the "material" attribute, meaning Link cannot commit arson despite the game's systems implying that all wood can be burnt.

5.3.1. Thematic parallels

One of the most interesting ways *BotW* pursues coherency in its diachronic narrative is by exploring the same concepts through its emergent qualities as well as its authored narrative, namely agency and discovery. As elaborated on previously, the emergent qualities of the game are largely based on the concept of absolute freedom of choice for the player, where creative approaches to

navigation, combat and puzzle-solving are encouraged. In the diachronic narrative, Zelda finds herself in the opposite scenario of being forced to approach problems a certain way: to pray for the ancestral magic instead of taking precautions through research into ancient technology – a character trait echoing Zelda's status as the holder of the Triforce of Wisdom in the overall *The Legend of Zelda*–lore.

The desire to research is not a selfish one, but also rooted in protection of the nation. The difference is in approach: her approach would be to use technological means, whereas her father wants her to pray for the magic. When Calamity Ganon finally attacks, both Zelda and her father turn out to have been in the wrong: all of the ancient technology meant to be used against the Calamity is immediately corrupted by Ganon's Malice and the key to unlocking the power was love, not prayer. When Zelda has the most urgent need to protect, i.e., when Link is about to die, she finds it possible to wield her magic. There is no reconciliation for Zelda and her father, as her father dies in the attack. Nor is there time for Zelda to mourn the passing of her father as she, due to her insistence in research, knows how to revive Link for a final confrontation with Ganon a hundred years later, while she uses her magic to contain the Calamity within the Hyrule Castle for a century. Zelda and Link are equally important in defeating Ganon, although it can be argued that the story is merely a subversion of the "damsel in distress"-trope.

5.4. Kernels and Satellites

The size of the possibility space in *BotW* is immense, but with a seemingly small number of kernels and satellites. This is a perceptual illusion, however, as the actual number of satellites is huge, but they are spread thinly on the large game world. Considering every possible enemy encounter, for example, could be seen as instances of satellites. This argument is prone to the slipper-slope fallacy: If every enemy encounter is an optional satellite, are all micro-decisions the player makes satellites? Every sword-swing and every step? It may sound like the definition becomes too vague to be at all useful, but I am inclined to argue so. Every decision can alter the course of the game – even a single step can reveal the location of a Shrine, for example. However, to retain the usefulness of the term satellite as it pertains to authored pieces of relatively linear narrative content, we may call these

types of micro-decisions *supporting satellites*. Note that the act of taking a step is not necessarily a supporting satellite – it only becomes one if it, for instance, reveals a secret or causes an NPC or another part of the system to react to it. The notion of supporting satellites might seem unnecessarily vague, but it allows for an appreciation of the uniqueness of different players' journeys.

Supporting satellites can, therefore, become quite meaningful for the player. The term does not refer to their importance, but rather to their nature as emergent player-driven experiences. Discovering Lord of the Mountain on Satori Mountain (a supporting satellite) is surely a more meaningful experience than collecting 10 pieces of Luminous Stone to trade for two diamonds, which is an actual satellite in *BotW* ("Luminous Stone Gathering" side-quest).

The purpose of categorising the different activities in *BotW* is to assess what the essence of its story is, or what the crucial elements that make up the core of the story are and to assess the amount of dramatic agency afforded to the player. Because of the game's open design, most activities, even one's considered part of the main quest, are now optional satellites. The only actual kernels of the story are the events that transpire during the game's tutorial area, the great plateau, as described in section 5.2., as well as the confrontation of Calamity Ganon in Hyrule Castle. The rest of the game's content consists of satellites of varying gravity. This contributes to the sense of agency in *BotW*: even though the cutscenes are the least interactive part of the experience, even they mediate the sense of agency through the fact that they are mostly optional, although completing the Divine Beast -satellites will throw the player into cutscenes without a direct player input beyond entering an area.

The balance of kernels and satellites in *BotW* is heavily skewed towards satellites and supporting satellites. This means that, although most players will likely experience at least the four Divine Beasts – the most prominent satellites – the player always feels like they are in control of their experience despite following a set path, compounded by the fact that the range of ludophrases available for player expression is so vast. Thus, Breath of the Wild is a game that offers a sense of agency that is beyond the expectations of current game design practices, which have a tendency to gravitate towards a more authored experience.

6. Conclusion

Breath of the Wild is a natural-feeling step in the direction of a more player-centric approach to representation of an adventure than any game perhaps since the original *The Legend of Zelda* (1986). In a sense, *Breath of the Wild* is in fact not a "representation" of adventure akin to how the "narrative rhetoric" characterises the experience of games, yet at the same time that simulatory or emergent aspect of the design is an easily acceptable part of the narrative as well, making it difficult for me to agree with a purely simulation-based understanding of the game.

The main argument presented through my model of analysing ludonarratives is the dichotomy of ludonarrative balance and coherence in video game design. I have presented indie games as a paragon of pursuing the ideal story-game that coherently tells a story using the language of video games – what I believe to be a more innate or native way of merging the concepts of traditional games and narratives in this new medium that we call video games. Some of this innovation seems to be influencing the AAA video game business as well, as the analysis of *Breath of the Wild* above explicates some very similar ideals, although it can be argued that the high level of coherence is merely a side-effect of Nintendo's tendency to focus on enjoyable gameplay mechanics, and use the rest of the game design, including narrative design, to contextualise those mechanics.

Breath of the Wild manages to tie together embedded and emergent aspects to create an experience that is meaningful narratively, but one in which the narrative seems to mostly arise from the player's imaginative decision-making, instead of linear authored narrative, or even a non-linear choice-based narrative. In addition to being a profound experience, *BotW* opens up a dialogue about agency in video games both through its emergent and authored narratives. Perhaps ironic in relation to my thesis, *Breath of the Wild* is a strong argument in favour of the simulation rhetoric, as it truly feels like the player gets to go on an adventure of their own. However, as I have previously argued in this thesis, the meaningfulness of the simulation often arises through a narrative and representational understanding of the mechanical simulation, and I think this is especially the case with *Breath of the Wild*, where the emergent aspects of the design have largely replaced a traditional notion of narratives in video games, creating an experience that is best characterised by

the more flexible term ludonarrative, used not to describe the balance of ‘game’ and ‘story’, but to describe the result of their peacefully logical, and arguably inevitable, union.

Further research into narratively meaningful game experiences needs to shed the notions of video games being an extension to traditional games or an extension to narratives. The ludological mind set of examining video games as games, a set of rules and systems, will inevitably fail to fully encompass the entirety of the experience of playing video games, similar to the narratatological mind set it aimed (and arguably succeeded) to dethrone as the primary way of understanding video games. In accomplishing this, Seraphine's (2014) video game semiotics are an invaluable tool, as they provide the first step in understanding how interactivity can communicate complex ideas. More research is needed into how the current video game practices can be understood through this semiotic lens, and how the process of semiosis can be improved for a more natural feeling gameplay experience.

Ludography

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